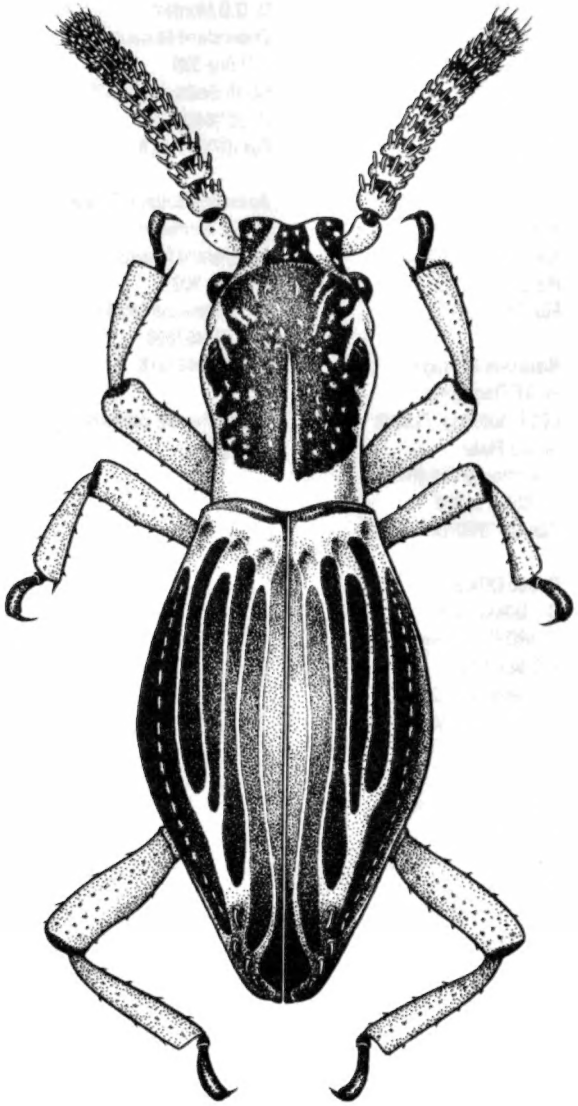
MYRMECIA

News Bulletin of the Australian Entomological Society Inc.

Volume 26, Part 2, May 1990

Reg. by Australia Post; Publication No. QBG3480; Price: $2



AUSTRALIAN ENTOMOLOGICAL SOCIETY OFFICE BEARERS

President
Dr T.R.New
Zoology Department
LaTrobe University
Bundoora Vic 3083
Ph (03)4791111
Fax (03)4785814

Secretary
Mr J.D.Sandow
I.C.I. Crop Care
12 Dampier Road
Welshpool WA 6106
Ph (09) 4512899
Fax (09) 4514418

Chief Editor
Dr N.W.Heather
DPI Entomology Branch
Meiers Road
Indooroopilly Qld 4068
Ph (07)3779382
Fax (07)3710766

Technical Editors
Dr B.K.Cantrell
DPI Entomology Branch
Meiers Road
Indooroopilly Qld 4068
Ph (07)3779418
Fax (07)3710766

Dr P.G.Allsopp
Sthn Sugar Experiment Stn
Box 65
Bundaberg Qld 4670
Ph (071)793228

Dr D.J.Rogers
DPI Entomology Branch
Box 23
Kingaroy Qld 4610
Ph (071)621355
Fax (071)623238

Vice President
Dr T.J.Ridsdill-Smith
CSIRO Entomology
Private Bag
Wembley WA 6014
Ph (09)3870640
Fax (09)3876046

Immediate Past President
Mr T.Passlow
30 Dumbarton Drive
Kenmore Qld 4069
(07)3784053

Treasurer
Ms A.R.Hill
Entomology, Agric.Dept.
Baron Hay Court,
South Perth WA 6151
Ph (09)2228298
Fax (09)3681205

Business Manager
Mr J.F.Donaldson
DPI Entomology Branch
Meiers Road
Indooroopilly Qld 4068
Ph (07)3779419
Fax (07)3710766

Public Officer
Dr I.D.Naumann
CSIRO Entomology
P.O.Box 1700
Canberra. ACT.2601
Ph (062) 465236
Fax (062)470217

Assistant Secretary
Dr D.F.Cook
Entomology, Agric.Dept.
Baron-Hay Court
South Perth WA 6151
Fax (09)3681205

Assistant Treasurer
Dr D.K.Yeates
Entomology, Agric.Dept.
Baron-Hay Court
South Perth.WA.6151
Ph (09)3683246
Fax (09)3681205

News Bulletin Editor
Dr G.B.Monteith
Queensland Museum
P.O.Box 300
South Brisbane Qld 4101
Ph (07)8407699
Fax (07)8461918

Assistant Bulletin Editor
Mr G.I.Thompson
Queensland Museum
P.O.Box 300
South Brisbane Qld 4101
Ph (07)8407690
Fax (07)8461918

(Office Bearers continued on rear cover)

THE COVER

The cover illustration for this year's "Myrmecia" features an illustration from the forthcoming new edition of "Insects of Australia" . The illustration is by Ann Hastings, one of the CSIRO artists who have been working on the numerous new plates for the book. The species shown is *Sarothrias lawrencei* Lobl & Burkhardt, a member of the Jacobsoniidae ,a family which appropriately enough had no described species from Australia at the time of the first edition. *S. lawrencei* is a tiny, rare species from the rainforests of North Queensland and has distinctive scale-like setae on the antennae and tracts of silvery tomentum on the body.

NOTICE

Statements made in "Myrmecia" do not necessarily represent the views of the Australian Entomological Society. Items printed herein should not be referred to or reproduced without permission of the author of the material.

Printed by:
All Clear Offset Printers
15 Lamington St
New Farm Qld 4005
Ph (07)3584115

MYRMECIA

CONTENTS

Executive Quarterly Report 54
21st Annual General Meeting Agenda 57
Regional News
Queensland 57
Australian Capital Territory 60
Victoria 63
South Australia 65
Tasmania 66
Western Australia 66
Northern Territory 68
New South Wales 70
Overseas News
New Zealand 73
News from Affiliated Societies
Entomological Society of Victoria 74
Entomological Society of NSW 74
Entomological Society of Queensland 74
1990 Listing of Postgraduate Projects 75
Research Grant Report 83
Research Requests 84
New Director of Bureau of Flora and Fauna 85
Pest Management Video Programme 86
Australian Academy of Science 86
Coming Events 87
Obituary — K.M.Moore 90
Biographical Note — E.P.Jones 91
Proxy Appointment Form 93

Copy deadline for next issue

Material for publication in the August 1990 issue of *Myrmecia* should be in the hands of the Editor at his address on the inside the front cover by **Friday, July 20.** Fax transmission may be used to (07)8461918 but care should be taken to ensure legibility and hard copy should be posted simultaneously. Material may be submitted on floppy disk and any common word processor format is acceptable but "Microsoft WORD" is preferable.

EDITORIAL

Readers of this periodical over the years will have noticed that I have gone to considerable effort to obtain comprehensive obituaries of passing Australian entomologists, whether or not they have been Society members. An essential part of an obituary is the portrait and we have never missed managing to get some photographic coverage of the subject, whether it be from a print, a slide, a newspaper clipping or even just lifting a face from a group snap at a meeting. I believe that "Myrmecia" has an important role to play in this process of recording the lives and images of our fellow insect enthusiasts. I know from the little bit of historical research that I have done that these items will be goldmines for historical enquirers of the future.

Despite our diligence in getting information for current obituaries this does not rectify omissions of the past where many entomologists slipped away without their details being recorded in written form. In this issue there is the first of what I hope to be a long series of "Biographical Notes" and it deals with the life of Edmond Jones, a butterfly collector from the Rockhampton district who lived from 1877–1957. Similar information must be available for many other entomologists whose lives passed without adequate recording and I would invite readers to make the effort to put together similar "Biographical Notes" for future issues of *Myrmecia*.

Geoff MONTEITH
Myrmecia Editor

Myrmecia **Advertising rates**

	Single Issue	Four Issues (One Year)
Full page	$60	$180
Half page	$35	$105
Quarter page	$24	$72

These rates apply to camera-ready copy supplied by the advertiser. Where this is not supplied a small additional charge may be made for the layout.

In addition, loose inserts and pamphlets supplied by the advertiser will be included in a mailout for $50 per item. The items should be of a size which will not project beyond the pages of *Myrmecia*.

Executive Quarterly Report

MEETINGS

The Executive met on February 12, March 19 and April 5, 1990.

MEMBERSHIP

The Executive accepted 34 nominations for membership and elected 25 new members. The distribution of members is as follows:

QLD	181	WA	48
NSW	158	TAS	29
ACT	118	NT	13
VIC	102	O/S	59
SA	65	Address Unknown	7

Membership by categories is:

Full	594	Honorary	6
Student	94	Joint	26
Retired	60	TOTAL	780

Resignations were accepted from:

Miss S. Bhatti (ACT)
Dr H.M. Flint (O/S)

ADDRESS UNKNOWN

The Secretary would like to hear from anyone who knows the addresses of the following members:

Ms J.A. Cavanaugh	Mr T.R. Glare
Dr P.M. Ives	Mr N. Nikolakopoulos
Dr A.J.E. Orian	Miss C. Satasook

NEW MEMBERS

WE WELCOME THE FOLLOWING NEW MEMBERS:

Elected February 12, 1990

Mr P.C. Annis, BSc, CSIRO Division of Entomology, PO Box 1700, Canberra, ACT 2601. Peter is a senior experimental scientist with 16 years experience in the control of stored product pests.

Mr M.A. Horwood, BSc, Biological and Chemical Research Institute, PMB 10, Rydalmere, NSW 2116. Martin becomes a joint member with his wife Christine Stone. He is a technical officer currently completing a MSc degree on parasitism in the Australian plague locust through Macquarie University.

Miss J. Layland, BSc, DipScAg, Berrimah Research Farm, PO Box 79, Berrimah, NT 0828. Jacquelyn is an entomologist with experience in horticultural entomology and biocontrol of weeds. She is currently involved in *Heliothis* research in non-cropping regions.

Dr L. Robertson, BSc, DipSci, PhD, DPI, PO Box 81, Emerald, QLD 4720. Les is senior entomologist at DPI and has an extensive list of publications in the areas of economic entomology and natural control of pests.

Dr E.R. Rumbo, BA, PhD, CSIRO Division of Entomology, PO Box 1700, Canberra, ACT 2601. Eric is a principal research scientist with interests in insect behaviour, pheromones and biological control.

Dr P.H. Smith, BSc (Hons), PhD, RMB 189, Bungendore, NSW 2621. Peter is a research scientist with the CSIRO. His interests include circadian rhythms and the reproductive physiology and behaviour of Diptera.

Elected March 19, 1990

Dr R.A. Bedding, BSc (Hons), ARCS, PhD, DIC, 13 Welsh Place, Flynn, ACT 2615. Robin is a Chief Research Scientist at the CSIRO Black Mountain Laboratories. He works with entomopathogenic nematodes and is particularly interested in their role as biocontrol agents. He also has an interest in the rhinophorine Diptera.

Mr D.R. Britton, BSc (Hons), 59 High Street, Northcote, VIC 3070. David is interested in the taxonomy and ecology of the Lepidoptera. He is currently studying the feeding ecology of *Chlenias* sp. for his Master's degree at LaTrobe University.

Dr I. Dadour, BSc (Hons), PhD, Entomology Branch, Department of Agriculture, Baron-Hay Court, South Perth, WA 6151. Ian is interested in the bioacoustics of katydids, sexual selection and speciation processes. He has recently joined the WA Department of Agriculture working on biocontrol of bushflies.

Mr H. Floriani, 7 Palm Way, Culburra Beach, NSW 2540. Hugo has recently returned to full-time employment and is interested in the study of insect pests, particularly those affecting the domestic environment.

Dr G. Gordh, BA, MA, PhD, Department of Entomology, University of California, Riverside, CA 92521, USA. Gordon is Professor of Entomology at the University of California. He has published extensively on the biology and systematics of parasitic Hymenoptera.

Dr J. Hii, BSc (Hons), DAPE, PhD, Papua New Guinea Institute of Medical Research, PO Box 378, Madang, PNG. Jeffrey is a research fellow in entomology with more than 10 years experience in the biology and control of vectors of malaria. He has a special interest in the systematics and genetics of anopheline species complexes.

Mr M. Julien, MSc, CSIRO Division of Entomology, PMB No. 3, Indooroopilly, QLD 4068. Michael has had 15 years experience in the biological control of weeds. He has recently begun studies on the Psyllidae.

Dr R.J. Rowe, PhD, Department of Zoology, James Cook University, Townsville, QLD 4811. Richard is a lecturer in Zoology with interests in insect behaviour, freshwater insects and the Odonata in particular.

Mr W.J. Wanjura, BAppSci, CSIRO Division of Entomology, PO Box 1700, Canberra ACT 2601. Wolfgang is a technical assistant interested in the insect fauna associated with eucalypts.

Elected April 5, 1990

Miss A.J. Annells, BAgSci (Hons), 3/21 Hamilton St, Osborne Park, WA 6017. Amanda is an experimental scientist with CSIRO. She has wide ranging interests in ecology and behaviour, virus transmission, insect/plant relations and sexual selection behaviour.

Ms R. Broe, BSc, 26 Waterview Terrace, Dutton Park, Brisbane, QLD 4102. Rose is a technical assistant with experience in the taxonomy of predaceous dung beetles and microhymenopterous parasitoides.

Mr P.G. Cole, BSc (Hons), Plant Research Institute, Swan Street, Burnley, VIC 3121. Peter is a technical assistant with an interest in the Psocoptera of south east Australia and of Flinders, King and Deal Islands. He is working with noctuid moths and their parasites.

Miss S. Dolsopon, BSc, Zoology Department, University of Western Australia, Nedlands, WA 6009. Supatra is a Masters degree student with interests in biological control of insect pests. She has experience in tropical entomology in Thailand.

Mr P. Lillywhite, 71 Victoria Crescent, Abbotsford, VIC 3067. Peter is a technical officer with the Invertebrate Survey Department of the Museum where he has ample opportunity to exercise his interest in both terrestrial and aquatic invertebrates.

Mr C.P. Madden, BSc (Hons), Entomology Department, Waite Agricultural Research Institute, PMB 1, Glen Osmond, SA 5064. Christopher is studying the use of organic chemicals by aquatic insects for his PhD. His research specifically involves chironomids and pollution.

Dr S.V. Rajakulendran, BSc(Agric), MSc, PhD, BCRI, NSW Department of Agriculture and Fisheries, PMB 10, Rydalmere, NSW 2116. Victor is a technical officer (Scientific) with more than 6 years experience lecturing in entomology. His research has centred on the biological control of insect pests.

Mr A. Spessa, BSc, CSIRO Heliothis Research Unit, PO Box 59, Narrabri, NSW 2390. Allan is currently studying the reproductive biology and ecology of *Heliothis* spp. for his Master of Rural Science degree.

Mr S. Sudhi-aromna, BSc, Zoology Department, University of Western Australia, Nedlands, WA 6009. Sarute is a research student with experience in tropical entomology in Thailand.

Mr S. Watanasit, BSc, Zoology Department, University of Western Australia, Nedlands, WA 6009. Suparoek is a PhD student studying insect control and insect behaviour. He has worked as an entomologist in Thailand.

CHANGES OF ADDRESS OR TITLE

Mr D.A. BARRACLOUGH, Natal Museum, 237 Loop Street, Pietermaritzburg 3201, Natal, South Africa (NSW).

Dr G.R. BROWN (formerly Mr).

Mr G.A. BUCHANAN, Sunraysia Horticultural Centre, PO Box 905, Mildura, VIC 3502 (VIC).

Dr M.C. CALVER, External Studies Unit, Murdoch University, Murdoch, WA 6150
Ms G.F. CARRUTHERS, c/- Ecosystem Management, University of New England, Armidale, NSW 2351 (NSW).
Dr A. CHINAJARIYAWONG (formerly Mr).
Dr D.F. COOK, CSIRO Division of Entomology, PO Box 1700, Canberra, ACT 2601 (WA).
Prof. R.H. CROZIER (formerly Associate Professor)
Mr S.L. DOGGETT, Department of Infectious Diseases and Microbiology, Westmead Hospital, Westmead, NSW 2145 (NSW)
Mr W.M. DOHERTY, Oonoonba Veterinary Laboratory, PO Box 1085, Townsville, QLD 4810 (QLD).
Dr M.L. EVANS (formerly Miss).
Dr R.P. FIELD, Keith Turnbull Research Institute, PO Box 48, Frankston, VIC 3199 (VIC).
Mr C. GOLETSOS, 28 Collins Street, Belmore, NSW 2192 (correction).
Assoc. Prof. D.F. HALES, School of Biological Sciences, Macquarie University, NSW 2109 (NSW). Dr P.M. Ives, Address unknown.
Dr Z. MAZANEC (formerly Mr).
Dr S.F. McEVEY (formerly Mr), Australian Museum (Entomology), PO Box A285, Sydney South, NSW 2000 (O/S).
Mr M.J. MULLER, CSIRO Tropical Animal Production, PMB 3, Indooroopilly, QLD 4058 (correction).
Mrs C.J. NEALE, DPI Entomology Branch, Meiers Road, Indooroopilly, QLD 4068 (QLD).
Dr W.A. PALMER, North American Field Station, 2801 Arrowhead Circle, Temple, Texas, USA (?).
Mrs M.D. PEART, Department of Plant Production, University of Queensland, Gatton College, Lawes, QLD 4343 (QLD).
Dr A.M. RICHARDS, School of Biological Science, University of NSW, PO Box 1, Kensington, NSW 2033 (NSW).
Dr G.D. RIPPON, PO Box 108, Jabiru, NT 0886 (NT).
Mr D. RUGG, MSD Veterinary Research and Development Laboratories, PO Box 135, Ingleburn, NSW 2565 (NSW).
Mr D. RUNCIMAN, Flat 44, Barnes Way, Bundoora, VIC 3083 (VIC).
Dr D.P. SINCLAIR (formerly Mr), Department of Health, DEOH, PO Box 35, Cairns, QLD 4870 (QLD).
Dr M.M. STEVENS (formerly Mr)
Dr E.B. TAY, PO Box 93, 89457 Tanjung Aru, Sabah, Malaysia (O/S)
Mr A. TERAUDS, Department of Primary Industry, GPO Box 192B, Hobart, TAS 7001 (TAS).
Dr P.H. TWINE, DPI Entomology Branch, Meiers Road, Indooroopilly, QLD 4068 (QLD).
Dr J. WOODWARD, Plant Research Institute, Swan Street, Burnley, VIC 3121 (VIC).
Dr A. YORK (formerly Mr), 2/14 Edgecliffe Avenue, South Coogee, NSW 2034 (NSW).
Ms C.M. YULE, 54 Fordham Avenue, Camberwell, VIC 3124 (O/S)

FROM THE MINUTES

Biological Council of Australia

In October 1989, Dr E. Jane Wright represented the Executive at a meeting held in Canberra to discuss the formation of the Biological Council of Australia. The meeting coincided with the Annual General Meeting of the Federation of Australian Scientific and Technological Societies (FASTS). This Society is currently an associate member of FASTS.

The proposal to form a Biological Council under the auspices of FASTS has been mooted for some time. One of the aims is to give the biological societies a stronger voice in the parent body and thus more influence in the political arena. The Council is also expected to facilitate communication between societies. Some of the impetus for the move comes from a perceived bias in the current membership of FASTS toward the physical sciences.

At the October meeting, a working party of 7 members was chosen to develop a constitution and consider the issue of funding for the Council.

The Executive is in favour of the formation of the Biological Council. However membership of the Council is likely to cost the Society substantially more than the current nominal subscription to FASTS. The Executive hopes that sufficient information about the constitution of the new Council and the cost of membership will be available prior to our AGM in Canberra so that members will be able to vote on the matter at the meeting. The question has been set down at item 11 on the AGM agenda (next item, this issue).

Councillors will receive all the available background information prior to the 39th Council Meeting which

precedes the AGM. It is hoped that discussion at the Council Meeting will allow the Executive to convey a recommendation of Council to the membership of the AGM.

Any member who would like to receive a copy of the background information prior to the AGM should contact the Secretary.

Research Grants

The Executive was pleased to receive a report from Ian Barrass, describing his recent study tour of Queensland. Ian was one of 4 successful applicants for the Society's Research Grants last year. He has made good use of the funds, visiting research groups involved in the culturing of encyrtids in the laboratory. His report appears elsewhere in this issue.

21st Annual General Meeting

Regular reports from the Organising Committee of the 21st AGM indicate that this event will be one to remember. The enthusiasm and dedication of the Convenor, Jane Wright, and her committee, is apparent in the extensive conference programme and the wide range of social functions which have been organised to coincide with it. The Executive is confident that the Canberra meeting will be a worthy celebration of the Society's 25th Anniversary.

21ST ANNUAL GENERAL MEETING

Australian National University, at 5.00 pm on Tuesday July 3, 1990.

AGENDA

1. Opening
2. General announcements
3. Announcements of proxies and apologies
4. Deaths of members recorded since 20th AGM
5. Minutes of 20th AGM (published in *Myrmecia*, May 1989)
6. Executive Annual Report, including reports of Treasurer, Chief Editor, *Myrmecia* Editor and Business Manager.
7. Committee reports:
   (i) Conservation Committee
   (ii) Marketing Promotion Committee
8. Competitions — announcement of awards
   (i) Student Award 1990
   (ii) Biological Illustration competitions 1990
9. Australian Entomological Society Research Awards — announcement of recipients for 1990
10. The Mackerras Medal for Excellence in Entomology — 1990
11. Membership of the Biological Council of Australia
12. Business arising from the 39th Council Meeting
13. Announcement of Office-bearers and Councillors for 1990
14. Report of the 21st AGM Organising Committee
15. Report of the 22nd AGM Organising Committee
16. Other business (arranged with the Secretary not later than June 3)
17. Close

Regional News

QUEENSLAND

SOUTH EAST QUEENSLAND

Lands Department, Alan Fletcher Research Station

Paul McFadyen, who has been seconded to Head Office since 1986, has now transferred to Treasury and therefore definitely quit the entomological scene. He still retains an active interest in agricultural matters though, and will be keeping a sharp Treasury eye on Department of Primary Industries and Lands!

Bill Palmer from the North American Field Station in Texas was in Australia on leave over Christmas and was based at Brisbane till April. He is now back in Texas for a further two years.

Jenny Marohasy reports from Kenya that she is settling in better now and will be visiting the Sudan in May. Two Kenyan insects for the control of *Acacia nilotica* should be arriving in quarantine later this year.

Queensland Institute of Medical Research

Brian Kay will be in Laos from 12 May–15 June as a WHO consultant advising on surveillance and control of *Aedes aegypti*. Brian will then visit Geneva on 25–8 June to

attend the Steering Committee meeting on Environmental Management for Vector Control.

Michael Brown and Linda Muir (QIMR) will be travelling to Darnley Island in the Torres Strait with Pipi Mottram (State Health Department) in May for the first release of *Megacyclops* for *Aedes aegypti* control.

Ian Fanning will be going to Townsville to assist Mr Mark Hearnden with a management plan for the Ross River dam, stage 2. The present dam will be expanded 5-7 times to 52 square km. The problem with sea stingers and the need to expand freshwater recreation areas convinced the Townsville/Thuringowa Waterboard to set aside part of the dam for public use. The project will be responsible for control of mosquitoes, avian schistosomiasis and trombiculid mite infestations. With a budget of $420,000, the project will last 3 years and employ 3 people. Brian is very impressed with the Waterboard's approach, since it is one of the few times engineers and administrators have sought out entomologists for consultation at the planning stage. Prevention *is* better than cure!

University of Queensland

Martin Rice has returned from long service leave and is ploughing through piles of accumulated paperwork! He has been invited to participate in the 20th anniversary celebrations of the International Centre for Insect Physiology and Ecology in Nairobi, in May, and give an address on: "Better concepts in insect behaviour". Martin has been travelling extensively in Africa and Asia to study the Neem tree and to collect high yielding biotypes, as part of a joint ASAAC project with QDPI on the safe insecticide Azadirachtin. Two new PhD students are working on this remarkable compound: Katrine Meurant who is studying its effects on *Lucilia* on an AWC grant; and Zhen Chang Shen who is investigating its effects on *Heliothis* on a grant from Queensland Cotton.

Gary Dodson, an ex postdoc with the Department, passed through during March on his way to PNG to help a NZ film crew to capture, among other things, the fascinating jousting of Antler flies (*Phytalmia* spp.) on celluloid. Professor Ron Prokopy from the Entomology Department of the University of Massachusetts visited the Department during April for discussions and a seminar on the "Behavioural ecology and host range expansion of *Rhagoletis*".

On 8th and 9th February, 1990 the Inaugural National Conference on Biting Midges was held on the Gold Coast to consider those species which are pests of man. Some 80-100 people attended. They represented State and local authorities (mostly Queensland and New South Wales), chemical companies, CSIRO, tertiary institutions and private interests. Displays of equipment and data on chemicals and their application were provided by sponsoring companies: the department mounted a display of posters used in education and of equipment for collection and handling.

The subjects discussed covered distribution, taxonomy of immature stages and adults, public health impacts, control practices and developments, the marine environment and legal constraints on control measures. In the final sessions the problems posed by midges and their possible solutions were summarised and discussed. The conference ended with a unanimous decision to set up a biting midge research trust fund and the appointment of a steering committee for that purpose. The department was represented by Hugh Paterson, Doug Kettle, Marleen Elson-Harris and Eric Reye. The proceedings of the conference are in press.

CSIRO Long Pocket

Don Sands visited PNG in April to check progress on a project to control the introduced Banana skipper, *Erionota*. Don returned with a shipment of the Braconid parasite, *Apanteles erionotae* for testing in quarantine against various Australian native Skipper butterflies.

Mic Julien, Wendy Forno and Ken Harley attended the 3rd International Congress on Plant Protection in the Tropics held in Kuala Lumpur, Malaysia. Wendy presented a poster and paper on *Mimosa pigra*, while Mic presented a paper on protocols and Ken chaired the session on biological control. On the way back, they undertook preliminary surveys of a new ACIAR water hyacinth project between CSIRO and NBCRC, Thailand. In Darwin, they also viewed the spectacular spread of the stem borer, *Neurostrota gunniella* through *Mimosa pigra* infestations. The borer was only released last year.

Mr Robert Mensah visited Peter Room's group with some fascinating tales about psyllids attacking *Boronia* grown in Tasmania for the perfume industry.

DPI Entomology Branch

John Macfarlane of the Plant Research Institute, Burnley, visited Geoff Waite (Nambour) on March 29 to discuss mutual problems of gaining adoption of IPM in strawberries.

Merv Bengston was in the Philippines recently as part of his association with the Department's ACIAR work on stored grain pests.

Ian Titmarsh, Dave Murray and Peter Twine attended the workshop on *Heliothis* at Indooroopilly in early February. The workshop was attended by 25 research representatives and members of various research funding bodies from all states of Australia. A number of aspects of the research effort on the species were discussed in terms of the future.

A video entitled "Best Friends — Natural Enemies" has been produced under the guidance of Elaine Brough, Ian Galloway and Dan Smith. It looks at the adoption of IPM in the citrus industry around Mundubbera through the assistance of Dan Papacek. The video is now available.

Frank Page reports a successful integrated mite control field day was held in an apple orchard at Pozieres at Stanthorpe with over 200 attending. The IMC block required one application of propargite (Omite) for the control of European Red Mite *Panonychus ulmi* (Koch) compared to the four applications on the non-IMC block. Prof. Ron Prokopy of the University of Massachusetts gave an interesting talk on his research into IPM and its application in commercial apple orchards in USA.

Integrated Pest Management Pty Ltd

Dan Papacek reports that this season has seen a considerable move by even the most hardened growers towards the use of beneficials instead of sprays. Significant releases of *Aphytis lingnanensis* and *Leptomastix dactylopii* have been made throughout the local citrus industry. There is also a continued growing interest in the use of *Leptomastix* for the control of mealybugs in the custard apple industry.

During mid-late summer collections of spined citrus bug eggs were made and sent to David James at Yanco for assessment of parasitoid activity. Of 2,300 eggs sent 67% yielded parasitoids. David plans to establish some of the Queensland strains in the southern citrus districts where SCB has been an increasing threat over recent seasons.

University of Queensland, Gatton Campus

Plant Protection Section in conjunction with Nufarm Chemicals conducted a fumigation field day at Gatton College, Horticultural Field Section. Guest speakers were from DPI, Plant Pathology Section, Nufarm Chemicals and a field fumigation was demonstrated by Mr W. Abel, a licensed fumigator. The field day was attended by farmers from Lockyer, Fassifern and the Downs area as well as plant protection students.

Plant Protection Section staff and representatives of AVCA, Departments of Agriculture, TAFE and farmer representative groups met at Gatton College to discuss guidelines for a national voluntary self-regulating scheme for accrediting primary producers in the use of farm chemicals.

A group of South African cotton growers on 18th April visited Gatton College's Plant Protection Section and had a seminar on cotton pest problems. This provided an opportunity for a useful interchange of information about the management of pests in the two countries.

Queensland Museum

Visitors have included John Heraty, a PhD student from Texas A.& M. University who was collecting and examining collections of the peculiar ant-parasitic chalcidoids of the family Eucharitidae. Following field work in south and north Queensland he was on his way to South-east Asia. Ian Naumann, from ANIC Canberra, also spent time looking at the Hymenoptera collection.

David Hancock has been reviewing the W.H Miskin holding of butterflies and has located many previously unrecognised types. The collection was sold to the Queensland Museum by Miskin's wife in 1892 after he departed Brisbane in that year leaving both her and a busy butterfly hobby behind him. He had described many new Australian butterflies and some moths in the previous decade. Luckily his handwritten notebooks survive and these have been invaluable in sorting out some of the headaches regarding his types.

Robert Raven visited Cape Tribulation and Cooktown in April collecting mygalomorph spiders. On his way back Robert stopped off in Rockhampton and established a series of long-term pitfall traps.

Des FOLEY & Peter TWINE
Regional Councillors

NORTH QUEENSLAND NEWS

Ian Cunningham, head of the DPI's Entomology Branch in Mareeba, is spending 6 weeks on a consultancy in Thailand based at Chiang Mai. He will be studying insect pests in the local mango industry, especially the three species of seed weevil (*Sternochaetus*).

Jeroen den Hollander from the University of Wales in the UK spent a week in north Queensland trying to obtain live cultures of brown plant hopper for study back in Cardiff. Though weather conditions were not the best and various levels of bureaucracy unreliable, he and his cargo eventually flew out of Townsville.

John Heraty from Texas A&M University in the USA was due in north Queensland in April, where he will be pursuing adults and immatures of eucharitid wasps, parasites of various genera of ants.

Barry Moore spent a few weeks in the north during April. Though he spent most of his time pulling giant sensitive plant seedlings from his block at Julatten, he also found time to pursue the odd beetle.

Ross STOREY
Regional Councillor

AUSTRALIAN CAPITAL TERRITORY

CSIRO Division of Entomology

Keith Wardhaugh has just finished the first of three visits to Spain to collect dung beetles for Western Australia. Adults of *Copris hispanus*, *Bubas bison* and *Onitis bella* will be shipped to the Australian Animal Health Laboratory in Geelong, Victoria. Their eggs will be surface sterilised and sent to the West Australian Department of Agriculture, who will rear the beetles to adulthood and make the releases. Subsequently, the seasonal abundance of bushflies will be monitored in the areas where the exotic dung beetles were introduced.

Dan Bedo has recently transferred his efforts from genetics of sheep blowfly to simulation modelling of flystrike in sheep. As part of this program, study areas have been selected at Inverell and Gunning, NSW where selected graziers will provide weekly reports of flystrike incidence along with their sheep management practices. Geoff Clarke has returned from his secondment to the Australian Quarantine and Inspection Service and now heads up the sheep blowfly mass rearing efforts. Keith and Geoff Foster were visited recently by the management working party of the sheep branch of the Department of Agriculture of NSW (whew!), led by Ian Simpson from Young. They talked about the ecological research and genetic control program of sheep blowfly and gave them a suitably odoriferous tour of the mass rearing facilities.

Bernard Doube has just transferred to the Division of Soils in Adelaide, where he will work on earthworms in relation to sustainable agriculture. He will be considering the role of cultural practices on earthworm populations and the mechanisms by which earthworms increase plant productivity in horticultural, pastoral and cropping systems.

Max Whitten visited the University of Tasmania in February and gave the keynote address at their Centenary Week celebrations on a favourite theme, molecular biology.

Jonathon Banks recently ran two short workshops on identification of *Trogoderma variabile* for members of the various bulk grain handling authorities and departments of agriculture. As species level identification in this genus requires a very fine dissection and slide mount of the larval epipharynx, the silence of concentration from the workshop room was fairly deafening. Jonathon will have less time for such activities in the future as he will take his turn as section head of stored grain from the beginning of July, freeing up Bob Winks to concentrate on the commercialisation of SIROFLO and SIROFUME. Simone Rushton has joined the fumigant toxicology group and Angela Kumanovska has moved over to join Jonathon's group working on sorption studies on fumigants.

Agnes Brokerhof has joined the Stored Grain Laboratory for a year to study the control of tineid moths on textiles for her program of conservation of museum materials at the University of Canberra. She is from Holland and has a scholarship from the Australian European Awards Program for postgraduate research.

Have aphids, will travel! Paul Wellings and Peter Hart have gone to Tonga on an ACIAR project on biological control of banana aphid, *Pentalonia nigronervosa*, transmitter of banana bunchy top virus. They have taken starter cultures of *Aphidius colemani*, and will help to organise the Tongan effort. Dick and Anne Hughes have gone to South Africa to collect Russian wheat aphids and transport them to the quarantine facility in Montpelier, France for studies on resistance of Australian wheat cultivars to this pest.

Joanne Daly has been in demand recently, speaking on resistance management at an Australian Wool Corporation sponsored conference in Melbourne in March and at a *Heliothis* meeting in February in Brisbane, sponsored by the Oilseeds Research Council. Both meetings were designed to identify future research needs and priorities. Alistair Drake, Brian Fletcher, Peter Christian and Gary Fitt also contributed at the *Heliothis* meeting.

Jim Cullen and Bill Vogt have been appointed assistant chiefs for a 2 year term. David Evans will escape from the front office in September and take up co-ordination of the Division's programs on IPM of orchard and horticultural pests and pheromone use for monitoring and mating disruption.

The Third International Conference on Plant Protection in the Tropics in Malaysia was attended by Jim Cullen, Doug Waterhouse, Wendy Forno, Ken Harley and Mic Julien. Your correspondent has learned that Mic found the location of the conference on the floor just below the casino to be most convenient. All but Mic then continued to Thailand for meetings with Banpot Napompeth, the director of the Biological Control Research Centre of Thailand, on the current program on mimosa and forthcoming one on water hyacinth. In a short time all manner of culinary delicacies were sampled and Doug and Wendy can be considered fully fledged experts on all 30 plus Thai varieties of mango.

'Del' Delfosse has just returned from a European trip. The primary purpose was the annual joint meeting of biological control laboratories of the CSIRO, USDA, CIBC and ZIPP where Del brought everyone up to date on the Australian end of the programs. He continued to Montpelier to visit Guy Forrester, the newly appointed experimental scientist on the *Echium* project. They went to Spain and Portugal for 2 weeks to survey for natural enemies and spent some time at the University of Evora. Aside from giving a lecture at the University, the highlight of the trip for Del seems to have been staying in a fifteenth century convent (converted of course!).

Brian Williams from the International Centre for Insect Physiology and Ecology (ICIPE) in Nairobi visited Canberra in March and April. He is a biomathematician modelling tse-tse fly populations in a program to trap out this pest afflicting Masai cattle herds. He came to talk to other modellers and see similar research on blowflies and *Heliothis* in Australia.

Roger Farrow has gone travelling again (surprise, surprise), this time to the First Asia Pacific Conference on Entomology at Chiangmai, with support from AIDAB, and presented a paper on prospects for biological control of locusts and grasshoppers. He noted the interesting fact that unlike other Asian countries, Thailand has maintained the use of local varieties rather than switching to the high-yielding hybrids and as a result, the populations of grasshoppers and other insects in the crop generally remain at below damaging levels and insecticide usage has been kept to a minimum. He also visited Oslo in January to attend a United Nations/FAO sponsored workshop on the health and environmental impact of alternative control agents for desert locust control, and presented a paper on biological control agents. He reports that the weather was disappointingly mild with no snow and temperatures at about freezing.

Brian Fletcher and Don Sands (Indooroopilly) travelled to PNG in early April to review the ACIAR banana skipper program, and assisted in the first releases of a larval parasite. The specificity of the parasite had been tested against a number of PNG species including *Ornithoptera*, before permission to release was granted by the PNG Dept. Agriculture.

Australian National Insect Collection

There have been several changes in the Taxonomy and General Biology section since the last report. As from March 1st, Ebbe Nielsen has taken over from John Lawrence as Section Head, with Ian Naumann his Deputy. John's organisational abilities weren't long dormant; he devised a new layout for the expanded Coleoptera collections. This luxury was permitted by the movement of the Diptera collections to the new wing. The arrival of the relocated Hemiptera and Orthoptera allows Lepidopteran expansion and gives us a full collection hall, rather than the indoor volleyball court of the past two years. Unfortunately the move has taken place without the installation of a compactus, but should funds ever be provided the subsequent move won't be too traumatic. Tom Weir, Ray McInnes and Walter Dressler resurrected the heavy lifting machinery and skillfully organised the transfer of the collections without mishap.

Movements of staff haven't ceased yet, but Renate Sadler will move with the Diptera collections and an ABRS funded technician is to be recruited to assist John

Greenslade with the ant collections. Penny Greenslade has relocated her room next to Bruce Halliday but wonders how permanent this will be as the moleculars approach down the corridor. Keith Taylor is housed in the new wing next to Mary Carver and the newly installed Hemiptera collections.

The peaceful transfer of power to Ebbe hasn't diminished his appetite for work, exemplified by his organisation of the Willi Hennig meeting and editing of the *Tineid genera of Australia* and the Vancouver workshop proceedings on systematics and biology of the Hepialoidea. Ebbe will travel to Milwaukee in June to receive the prestigious Karl Jordan award for original research, awarded by the Allyn Museum and the Lepidopterist's Society.

Bruce Halliday hasn't had much time for his mite studies in the past quarter, being heavily involved in Divisional and Sectional defensive activities, particularly highlighting the plight of systematics. Bruce was instrumental in arranging the CSIRO sponsored visit of Peter Raven, the politico-botanist from the Missouri Botanic Gardens, to speak on "the biodiversity crisis" as it is known on the other side of the Pacific. A public lecture was well attended but left some of the audience feeling that the relationship between well documented loss of biodiversity and realistic proposals for conservation wasn't fully explored.

In a region where conservation is taking a high profile, the Tasmanian World Heritage Areas, several ANIC personnel have made recent collections. Pete Cranston collected chironomids from streams subject to tourist (and visiting entomological ..?) impact in the Pelion valley. Subsequently Penny Greenslade, Ebbe Nielsen and Ian Naumann collected in the same area and at Melaleuca/ Bathurst harbour in the south-west. Peter McQuillan, who worked with Ebbe in these areas subsequently visited the Section in early April to complete the Lepidoptera for the Wilderness Ecosystems Baseline Studies (WEBS) report. David Yeates, in Canberra for similar quarantine purposes to Peter, also dropped in to ANIC to discuss area cladograms and similar systematic problems exemplified by his bombyliid analyses.

Ted Edwards got out of the lab., and with Jenny Fisk collected heliothines and stirrines (the sister group of heliothines, and yes, I hadn't heard of them until half an hour ago) in the Bourke-Charleville area. Ian Naumann nearly escaped the "Insects of Australia" by visiting the Museum of Victoria and Waite Institute but couldn't restrain himself from dropping in to Melbourne University Press to discuss progress on the tome.

In a period that is relatively quiet as far as visitors are concerned, Larry Orsak dropped in to study moths between field work in PNG and his California base. John Grehan (Vermont, ex- NZ) paid a brief visit to discuss tineids and hepialids and Rita Rosenberg (University of NSW) discussed butterfly behaviour. Ian Common spent ten days working on his generic review of the Oecophorinae, concentrating on the *Wingia* group of about 100 genera, representing about 1/3 of the 5,500 species in this profuse subfamily. Two longer stay visitors left recently. Nina Wedell returned to Stockholm after a most successful visit, working with Dave Rentz on tettigoniid mating behaviour. She has already heard of renewed funding which will allow her to return later in the year. Victor Eastop ended his continent wide sojourn in March, returning briefly to the UK before taking up another overseas posting in Hungary. Vic is more vagile than any of his beloved aphids.

Australian National University

Across the road at the Australian National University Penny Gullan has resumed teaching duties and has recruited a number of CSIRO entomologists to assist in an invertebrate course for third year students. Shelly Rozario, who has bridged the narrow gap between CSIRO and ANU most ably for the past few years, has ceased her multiple part-time jobs to start a PhD under Denis O'Dowd at Monash at the beginning of May. She will be missed in Canberra, not least by this correspondent, for whom Shelly diligently prepared thousands of microscope slides of dull little flies. We all wish Shelley good luck in Melbourne.

Nick Drayson, who has commenced an MSc on Chironomidae with Pete Cranston and Penny Gullan, has stepped in to the slide making role in a part-time capacity. Chris Reid's thesis approaches the final stages of laser printing and curation of the nearly 1,000 illustrations. John Trueman's PhD on odonates continues apace and his rapid comprehension of cladistics contributes to the continuing savaging of otherwise unremarkable papers discussed at Coopers and Cladistics.

Bureau of Rural Resources

Matthew Cahill has recently moved to the Bureau of Rural Resources to take up a new position as the

entomologist working in the Plant and Natural Resources Branch. He has moved from Narrabri and *Helicoverpa armigera* insecticide resistance, to work in collaboration with the Australian Quarantine Inspection Service (AQIS) on surveys and monitoring for pests in Australia especially with respect to targeted surveys associated with plant quarantine - contributions gratefully accepted! - see article under Research Requests.

Jane WRIGHT and Peter CRANSTON
Regional Councillors

VICTORIA

Plant Research Institute, Burnley (DARA)

Mark Smith, Peter Ridland and Seamus Ward (La Trobe University) attended the *Heliothis* workshop in Indooroopilly Qld in February - a most informative meeting for those relatively new to the *Heliothis* game!

Dr Joe Riley, from Britain's ODNRI (Overseas Development Natural Resources Institute) visited PRI on March 5-7 to discuss research on insect migration with Garry McDonald. Joe also presented a very interesting seminar entitled "Radar and other observations of insect migration: ecological implications and their applications to pest management".

PRI has recently formed a biotechnology unit, which aims to apply new technology to entomological and plant pathology projects. Two new members of staff have been employed for this unit: Dr Robyn van Heeswijck (molecular biologist) and Dr Jim Woodward (biochemist). Jim also has a very keen interest in entomology.

Peter Williams and three other scientists from DARA's Inner Melbourne Region attended a Chemigation Workshop held at the Agricultural Engineering Centre, Werribee on 28-29 March. The Workshop was held by Dr John Young from the USA. Dr Young explained how a multidisciplinary group of scientists in Georgia developed the use of a centre pivot irrigation system to apply chemicals to growing crops, one pivot treating up to 60 hectares. In doing so, they produced a system which reduced water, chemical and energy usage and consequently production costs compared with other systems. Chemigation has now been developed in the USA into a total crop management system. There are good prospects for introduction and development of such a crop management system in Victoria but it will require multidisciplinary research to develop systems to manage different crops, pests and diseases on various soil types. Such developments would be a major contribution to the Government's Sustainable and Clean Agriculture initiatives.

Peter visited the CSIRO Division of Entomology in April, where he met with members of the Stored Grain Research Laboratory and the Nematology group.

Bill Frost and David Eagling have recently reported the presence of the cereal rust mite *Abacarus hystrix* for the first time in the southern hemisphere. *A. hystrix* is the vector of ryegrass mosaic virus, a serious disease of pasture grasses. Dr Sid Easton, principal grass breeder of the DSIR in New Zealand, visited the PRI in April to discuss with Bill Frost endophyte induced resistance to insect feeding.

Dr Matthew Cahill, an entomologist with the Bureau of Rural Resources, Canberra, (BRR), visited the PRI on April 3rd and met with the Acting Director (Dr Peter Merriman) and various staff, for preliminary discussions regarding the concept of a national data base on insect pests. It was agreed to support in principle the plan for a national, coordinated program of surveying and monitoring for pests, diseases and their likely hosts and vectors in Australia.

Dr John Curran, CSIRO, Canberra, visited PRI in April to discuss with Paul Horne and Gordon Berg the use of entomopathogenic nematodes in agriculture. Collaborative work using nematodes to control pests such as weevils and redheaded pasture cockchafers, will continue.

Mali Malipatil visited Darwin in February to continue participation in the project "Bioecology of insects associated with cashew at Wildman River Plantation, N.T.". The day to day field work for the project, expected to continue to the middle of 1991, is being carried out by Wayne Houston based at the DPI, Darwin. While in Darwin, Mali presented a paper to the Cashew Research and Development Workshop and caught up with many of his acquaintances at the Museum and the DPI.

Joy and Gordon Burns continued naming and arranging the buprestid specimens, now part of the VAIAC (Victorian Agricultural Insect and Arachnid Collection).

Kelvyn Dunn visited Ross Storey at the DPI, Mareeba N.Q. in March and examined the insect collection there. He also examined the insect collection at James Cook University, Townsville, and whilst at the University, visited Michael Braby. Kelvyn assisted Michael in the field near

Cardwell, where they collected *Mycalesis* butterflies as part of Michael's PhD thesis.

Museum of Victoria: Invertebrate Survey Department

Alan Yen and Peter Lillywhite spent three weeks with Robyn Coy to conduct a pyrethrum knockdown survey of arboreal invertebrates from various rainforest sites in Tasmania. A mass of micro-grot material was collected, and the hard work is just beginning.

Pat Vaughan is leaving the Museum to take up an appointment as the Environmental Officer for the Shire of Eltham. Pat was working on the aquatic invertebrates of the swamps west of Melbourne. He will be missed by the Museum, and we wish him the best of luck in his new career.

Rural Water Commission of Victoria: State Water Laboratory

Philip Mitchell and Vincent Pettigrove attended a 3-day workshop in February on Chironomidae (midges) at the Murray— Darling Fresh-water Research Centre in Albury, NSW. The workshop was well attended by taxonomists from all over Australia and was convened by Peter Cranston from ANIC.

Garry Bennison and Vincent Pettigrove are currently working on a 6 months research project to investigate the distribution and ecological requirements of the rare and endangered alpine stonefly *Thaumatoperla flaveola*. The project is funded by The Australian National Parks and Wildlife Service with an adopted aim of developing a conservation management plan for the species. Considered to be restricted to a few alpine streams on Mt Buller and Mt Sterling between 1000 and 1500 metres, the stonefly is under threat from proposals to develop Mt Sterling as a major ski resort by integrating it with Mt Buller to become Australia's largest ski resort. The project is due for completion in August 1990.

Ms Rhonda Butcher and Mr Glen Sant have joined the Water Quality Assessment Section from the Murray-Darling Freshwater Research Centre. Both are experienced freshwater macroinvertebrate taxonomists and have been involved in limnological studies of rivers and wetlands in S.E. Australia. Rhonda specialises in the taxonomy of Coleoptera, Hemiptera, Ephemeroptera and, to a lesser extent, the Plecoptera, in relation to freshwater systems. Glen specialises in the aquatic odonates and has published reports on this topic. Both have joined the State Water Laboratory to work on a new EPA funded statewide Biological Assessment and Surveillance Network Project.

A paper entitled: "Macroinvertebrate and Phytoplankton Communities of the River Murray" was presented by G.L. Bennison, P.J. Suter and C. Sullivan at the Third Fenner Conference on the Environment, held at the Australian Academy of Science, September, 1989.

La Trobe University, Zoology Department

Dennis Black, Demonstrator in Zoology, has received an ABRS grant to work on Australian millipedes. Congratulations Dennis!

The University of Melbourne, Genetics Department

In February, Jon Martin attended one of the Workshops on Chironomid Taxonomy run by Peter Cranston at the Murray-Darling Freshwater Research Centre at Thargoona, NSW. Jon gave a few details on recognising the larvae of different *Chironomus* species, while Peter demonstrated the significant advances that have been achieved in the knowledge of the taxonomy of Australian Chironomidae since he came to Canberra. A number of other participants in the workshop produced their favourite problem specimens to give Peter something to think about for future work! Peter is to be congratulated for his most useful presentation, and thanks to the MDFRC for organising and hosting the workshops.

Jon complains that it is a bit hard finding news to report when he's the only member of the AES at the University!

Keith Turnbull Research Institute, Department of Conservation and Environment

Following the recent Victorian Cabinet reshuffle, the Department of Conservation, Forests and Lands has been renamed the Department of Conservation and Environment. The new Department will encompass all of the former Department of Conservation, Forests and Lands, parts of the former Ministry for Planning and Environment and all of the former Department of Water Resources.

Eligio Bruzzese has been appointed as SCI-4, leader of Biological Control.

Chrysolina pulchella has been brought into quarantine for host specificity testing as a biological control agent of

boneseed and bitou bush. In March, a meeting took plate at KTRI to discus strategies for releasing biological control agents of these two weeds in Victoria, New South Wales, South Australia and Queensland.

The elm leaf beetle has been recently discovered on the Mornington Peninsula. As a consequence, Professor Don Dahlsten from the University of California was invited to Victoria to view the extent of the infestation. This visit has resulted in a joint project being set up between the Department of Agriculture and Rural Affairs and the Department of Conservation and Environment to initiate a biological control programme to contain or reduce the elm leaf beetle infestation. It has been proposed that an egg parasitic wasp, *Tetrastichus gallerucae* be introduced for host specifity testing at KTRI.

Dale Stephenson visited the CSIRO Division of Entomology in Canberra during January to observe mass rearing techniques of *Rhinocyllus conicus* for biological control of thistles.

Janet HORNE and Pat VAUGHAN
Regional Councillors

SOUTH AUSTRALIA

Department of Agriculture

Greg Baker attended the *Trogoderma* workshop held at CSIRO Entomology in Canberra in February. He returned there in March to attend a meeting of quarantine officers held by the Australian Quarantine and Inspection Service.

Gabriella Caon has returned to the Entomology Unit following a years respite on maternity leave.

James Ridsdill Smith, CSIRO, Perth, briefly visited the Unit in January to discuss research on the ecology of red legged earth mite and the damage it causes to annual legume pastures.

Jim Cullen, CSIRO, Canberra visited in February and discussed present and proposed projects on the biological control of weeds with departmental staff.

Peter Bailey visited the WA Department of Agriculture to discuss the Queensland fruit fly eradication programme there, particularly their use of sterile males. He also attended the *Heliothis* workshop in Brisbane which was sponsored by the Oilseeds Research Council.

South Australian Museum

Peter McQuillan (Tasmanian Department of Agriculture) visited the Entomology Section and sorted geometrid moths at the end of January. Also, Ian Naumann (ANIC) examined eulophid wasps at the end of March, whilst Glen Hunt (Australian Museum) studied the harvestmen (Opiliones) in the Arachnology Section in February.

Department of Entomology, Waite Institute

Professor Bob Wharton, a distinguished visiting scholar to the department, returned to Texas A&M in March, after completing his work with Andy Austin on a revision of the Australian members of three sub-families of braconid wasps.

Chris Madden has submitted his Masters thesis, entitled 'Deformities in Chironomid larvae associated with exposure to pesticides' and will soon commence a PhD with Andy Austin on the same subject, funded by AWRAC. John Jennings, a senior tutor from Roseworthy Agricultural College, has also started a part-time Masters programme with Andy on the systematics of hyptiogastrine (Gasteruptiidae) wasps.

Dr Joe Reilly from the Overseas Development Resources Institute, UK visited the department to give a seminar and discuss the radar tracking of insect movements with Mike Keller and Roger Laughlin.

Dennis Haugen attended the research working group meeting on forest entomology in Melbourne during March after making several extended visits to the Mt Gambier region to follow the progress of the *Sirex* control project there.

The insect pathology lab is a hive of activity these days as Dudley Pinnock, Jane Drummond and Dave Cooper contend with the organisation of the 5th International Colloquium on Invertebrate Pathology and Microbial Control to be held in Adelaide in August. Judging by the ever-swelling tide of registrations and abstracts, a large congregation is to be expected! Cathy Smallridge from the lab is visiting Joe Maddox's lab in Illinois to learn techniques associated with Microsporidia.

Alice WELLS and Duncan MacKAY
Regional Councillors

TASMANIA

Unattached

George and Jenny Ettershank have been studying the insect fauna of Leatherwood flowers (*Eucryphia lucida*) and its interaction with commercial honeybees. They plan to present a report on this work at the 21st Scientific Conference in Canberra in July. The project was funded under the Commonwealth National Rainforest Conservation program and supervised by the Tasmanian Forestry Commission.

Department of Primary Industry

John Ireson reports that the French strain of ragwort flea beetle (*Longitarsus flavicornis*) is now established over 1000 ha of ragwort infested pasture and is reducing the density of ragwort.

Margaret Williams attended the Horticultural Quarantine Research Grants Committee meeting in Canberra to discuss her new project on codling moth disinfestation of apples for export to Japan.

Peter McQuillan and Margaret took leave to participate in the Tasmanian World Heritage Area Wilderness Ecological Baseline Study at Port Davey and the Mt Pelion area. Several ANIC entomologists also joined in these surveys. Peter has appointed Wendy Fraser, an honours graduate from University of Tasmania to assist in a population prediction study of red headed pasture cockchafer *Adoryphorus couloni*. Australian Wool Corporation are providing the funds.

Susie Pearn joined a DPI team of runners and yachtsmen in the Three Peaks Race. She sailed on the 'Southern Cross Buckwheat' (a.k.a. 'Allegro'), a heavy yacht which could not be rowed as were several other yachts during calm conditions. Susie ran to the summit of Mt Freycinet and Mt Wellington both at night by torchlight with no tracks for the Mt Freycinet run. She found herself at the summit of Mt Wellington (1200 m) at 2am in running shorts wondering why she was doing this.

Lionel HILL
Regional Councillor

WESTERN AUSTRALIA

Agriculture Protection Board

While Peter Davis is on long service leave, and has intensified his role in taking care of his offspring, John van Schagen and Marc Widmer have been conducting chemical repellency trials on Argentine ants, using a range of organophosphates and synthetic pyrethroids. They also tried to test the repellency of various natural oils and were hoping to include neem extract, but could not get hold of this. The Argentine ant team has a new member. Tara Craven has recently started as Technical Officer. Tara will be involved in rearing laboratory colonies and trapping of ants in the field.

John van Schagen was recently invited to speak at a public meeting in the southwest of our state. People here were very concerned about the rapidly spreading argentine ants. John talked about the ant's behaviour, biology and ways to control them.

Department of Agriculture

The aphid monitoring team has lost another member and now consists of only one person. Francoise Berlandier has been busy to keep the program running. The current monitoring of aphids in the south west of WA will be winding up in May. This programme was aimed at determining the aphid species occurring in potato growing regions from Bunbury to Albany. Twenty one sites were monitored and a number of species not recorded in last seasons programme were discovered. Immediately after this the entomology branch will be closely involved with the plant pathology branch in trials aimed at determining a method to best control the spread of cucumber mosaic virus in lupin crops. In the meantime, Francoise has also commenced her MSc project at the University of WA where she will be looking at the comparative colonisation behaviour of three aphid species in lupins. This work will be supervised by Win Bailey.

David Yeates and Andy Sproul have been busy with the Queensland fruit fly eradication campaign during February to April. The sterile release phase of the campaign is in full swing now with between 30-40 million sterile flies being released each week. Baiting of the metropolitan areas of Perth was greatly curtailed by the end of February. Peter Bailey and Nic Perepelicia from the South Australian Department of Agriculture visited in early February to examine the sterile release program. Dr Ruth Frampton from

MAFQual in Lincoln, New Zealand also visited in February.

David Yeates visited Canberra for a week in early March for a Northern Australian Quarantine Strategy (NAQS) Workshop and the annual Quarantine Entomologists meeting. He and Technical Assistant Shirani Wijesuriya are travelling to the Ord for a week in late April to survey for insects funded by NAQS.

Ian Dadour, who recently started work on the dung beetle programme reports that the three species selected for release in the south west are currently being collected in Spain by Keith Wardhaugh (CSIRO). The releasing programme should be underway in June/July.

University of WA

Dr Heiner Romer (Ruhr University, Bochum) has just completed a 5 months research visit to UWA continuing his collaborative studies on insect hearing systems with Win Bailey. Dr Boongeua Witethorn arrives from the Prince of Songkla University, Thailand on a brief visit to commence a programme investigating the biology of insects infecting tropical herbaria. This is part of a UN funded programme reflecting the increased interest in tropical plants by chemists and pharmacologists. Any one reading this who is interested in the Psocoptera, or indeed has any experience in controlling insects in museums, please make contact.

Dr Andrea Schatral has completed her ARC research fellowship and is busy writing, her place will be taken by Dr Todd Shelly of the University of California, Los Angeles. He will be joined later in the year by QEII fellow, Dr Leigh Simmons from the University of Liverpool. Like Heiner Romer, Leigh has been a regular visitor on various Royal Society Fellowships and has at last been lured by the incredible insect fauna, and the idyllic working conditions of WA. Both Todd and Leigh will continue the tradition of the department by looking at orthopteran mating systems.

UWA is planning to set up a programme on grasshopper feeding biology on subterranean clover. Anyone who has a strong biochemical background, has a desire to develop a post-doctoral programme in an independent way, and who is willing to learn a bit about insects should contact Win Bailey.

Curtin University

Third year Ecology students recently visited the Dryandra State Forest, where they investigated the value of road corridors as reservoirs of the original biota. They made measurements on the floristic composition and invertebrate abundance along planted and natural corridors, and were able to relate the usage of these areas by birds back to these lower order 'variables'.

In connection with this, Jonathan Majer has been invited to speak at the forthcoming 'Greening Australia' Conference, which takes place in Adelaide during May. Jonathon will be talking about the potential opportunities for wildlife habitat and migrating corridors which may be provided as a by-product of greening Australia projects.

Department of Conservation and Land Management (Woodvale)

Gordon Friend and Dave Mitchell have been busy with an experimental burn at Tutanning Reserve in the wheatbelt in March 1990. The burn was through an area of *Allocasuarina*, heath and wandoo woodland and the effects of the burn on the invertebrates will be assessed at two-monthly intervals for the next few years.

A similar burn is planned for a small area of the Stirling Ranges in April 1990. This burn will be in an area where Gordon, Dave and Graham Hall have been running pitfall and intercept traps for the last 12 months.

Ed Gage, from San Antonio, Texas, visited WA briefly in February looking for cicindelid beetles. In 4 days Ed covered the area between Lake King, Norseman and Kalgoorlie; and despite the blistering weather managed to collect some interesting beasts.

While on the subject of cicindelids, we found a new species of *Nickerlea* in the Stirling Ranges in February. This brings the number of known species in the genus to three. Graham and Gordon are in the process of describing the new species, which will be named after Dave Mitchell who has collected both *N. sloanei* and the new species.

Graham has been sorting and analysing our data on Scarabaeidae and recently sent 30 species of melolonthines to Ev Britton for identification. These have now been returned with the news that 17 of them are new! This includes 12 new *Heteronyx*, most of which were from the Stirling Ranges. Ev feels that this is 'very depressing'!

The fledgling WA Insect Study Group has 3 members from Woodvale amongst its ranks. Graham gave a talk to the April meeting of the Group on paropsine beetles in the southwest, and (shock, horror) even Gordon, who is a professed vertebrate ecologist, has joined the Group. Dave

Mitchell is the other member, but field commitments have prevented him from attending any meetings so far. He hopes to do better in the future, but may have to abandon field work!

Health Department

Tony Wright is off to Kununurra to monitor Murray Valley Encephalitis and to Darwin to do some collaborative work with Peter Whelan, to investigate mosquito control techniques and to do some taxonomy work.

WA Museum

Terry Houston reported that the museum purchased over 500 exotic butterflies and more than 1300 Australian butterflies, representing 80% of the Australian species. This purchase was financed by Perth business man Kerry Stokes. These were the butterflies that were on display last year and attracted more than 43,000 visitors.

The newly formed Insect Study Group is well on the way now with 64 members. So far two meetings have been held which were quite successful.

CSIRO Division of Entomology

Marianne Horak spent a week in Perth looking for Lepidoptera pests in Macadamia. She spent some time talking with James Ridsdill-Smith and people from the Department of Agriculture.

The Red-Legged Earth Mite group has been building up in numbers, including the recent appointment of Amanda Annells. Amanda is a graduate from the Waite Institute and she is currently preparing for the winter sampling programme.

The group farewelled Lynne Hayles who decided to make a career change. Lynne has been with the CSIRO for 21 years and her experience will be greatly missed.

John van SCHAGEN
(on behalf of Peter DAVIS)
Regional Councillor

NORTHERN TERRITORY

Office of the Supervising Scientist, Alligator Rivers Region

The Australian Society for Limnology 29th Annual Congress is being held from April 20-22nd and the influx of conference attendees will swell the population of Jabiru town by almost 10%! The two Society members, Peter Dostine and Greg Rippon are overjoyed at the prospect of attending a conference without travelling half way round the world. After the Conference, trichopterist David Cartwright and odonatist John Hawking will be spending time in the region on consultancy projects on their respective taxa.

Department of Primary Industry and Fisheries (DPIF)

DPIF, WEEDS SECTION

The recent release of a biological control agent against *Sida* spp. has been a big success. The chrysomelid *Calligrapha pantherina* has been released at about 30 sites and landholders have re-released beetles to other areas of their properties. The very colourful beetles are providing very good biocontrol of this weed, but, as always, there has to be a down side. It appears at present that another weed *Cassia obtusifolia* may colonise the areas freed of *Sida*.

In February, the Section had a series of visitors - Wendy Forno and Mic Julian both from CSIRO Brisbane, to examine the *Sida* and *Mimosa* work and *Salvinia* in the Magela Creek area of Kakadu National Park respectively and Nick Monzu from the Western Australian Department of Agriculture to talk weeds biocontrol.

DPIF, AGRICULTURAL QUARANTINE SECTION

Ted Fenner again conducted the survey for exotic insects along the North Coast of the NT during February and March. These surveys have increased in frequency and are now taken at monthly intervals due to increased funding for the NAQS initiative in Northern Australia.

DPIF, ENTOMOLOGY SECTION

After 8 years in Darwin, Geoff Strickland resigned as Principal of the Plant Health Branch in mid April and has taken up the position of entomologist at Kununurra in the Ord Irrigation Area in Western Australia - his old stamping ground from the 1970's. His wide tropical experience will be sorely missed within the Department.

During March, Geoff attempted to collect parasites of the palm leaf beetle *Brontispa longissima* for release in an

outbreak area in Broome. More than 450 pupae and 250 pre pupae were collected and over 1000 pupal skins examined from *Brontispa* damaged palms along the Darwin foreshore. No parasitism by *Tetrastichus brontispae* (Ferriere) (Hym : Eulopidae) the wasp introduced some 8 years ago was observed which indicates that the parasite is in extremely low abundance or has not established in Darwin. The most effective biocontrol agent detected was the green muscardine fungus *Metarhyzium anisopliae* which was then released at three sites in Broome.

Mike Neal and others in the Section have been busy sampling experimental kenaf crops in the Douglas-Daly and Katherine areas over the past few months. The pest complex has changed over the wet season and high numbers of loopers (especially *Chrysodeixis argentifera*) have caused severe defoliation.

Meanwhile Jaye Layland and Haidee Brown have been looking at the preferential attraction of thrips to coloured sticky boards. Redbanded thrips have been caught on yellow boards and *Thrips palmi* seem to be attracted to blue which will assist in the monitoring of this recently introduced pest.

The cashew team was particularly busy during February with visits by Mali Malipatil (Victorian Department of Agriculture), QDPI eminent entomologist Ian Cunningham from Mareeba and attendance at the Cashew Research and Development Workshop held in Darwin. The workshop was well attended by representatives from all the major Australian cashew enterprises. The finding that cashew yields are closely correlated with tree canopy area was of particular interest since leaf feeding insects may have a large influence on the canopy area.

In addition, Wayne Houston managed to successfully breed the Large Mango Tip Borer *Penicillaria jocosatrix*, possibly for the first time in Australia. In the past, this species has proved difficult to breed and many combinations of cage type, temperature, humidity and moth density have been attempted by a number of workers without success. Wayne has also conducted light trapping trials at Wildman River in association with Bob Sandery to determine the flight activity of adults of the leafroller *Anigraea ochrobasis*.

Steve Collins commenced long service leave at the beginning of February while Stuart Smith visited Brisbane in January to inspect fruit fly disinfestation facilities and equipment at QDPI and to discuss disinfestation techniques with personnel at the Entomology Branch and the Horticultural Postharvest Group at Hamilton.

NT Health — Medical Entomology Branch

Peter Whelan presented a paper at the Biting Midge Conference held in February at Surfers Paradise and demonstrated the NT approach to insects of public health importance and urban planning - i.e. avoid the problem areas rather than change the habitat. As self inflicted punishment for the good conference location, Peter did penance by following up mosquitoes and waste water in the tall grass backblocks of Katherine and looking at potential mosquito problems with dam construction in the stony wastes north of Alice Springs.

Paul Barker-Hudson and Wendy Kelton have just returned to civilisation from an eight day survey during March of the Central-East Northern Territory where they were searching for possible introductions of dengue vectors from our neighbour to the East. They covered a lot of Territory and are eagerly waiting to process all the samples.

Graeme Dobson carried out a similar survey in the population centres on Groote Eylandt and processing of his samples indicates that the area is still free of *Aedes aegypti*. Visitors to the Branch included Major Williams and Captain Stanislaus of the Army Preventative Medicine Company based in Sydney for talks on the army's involvement in a mosquito survey in the Territory.

As this is my last report, may I thank the members of the Society in the NT for their assistance during my time as Regional Councillor and trust that the same support will be given to my successor.

Stuart SMITH
Regional Councillor

NEW SOUTH WALES

METROPOLITAN SYDNEY NEWS

Macquarie University, School of Biological Sciences

It's one of those times (increasingly frequent in University life) when everyone is too busy with teaching and administration to do anything with insects at all. So much for the academic staff. The postgraduate students are a bit better off, perhaps, and spend some time on their thesis work. For example, Lou Rodgerson and Lesley Hughes are breathing a sigh of relief as the field season draws to a close; it's been a very successful season but would be better if the rain would stop! (Yes, another wet Sydney autumn). Andy Beattie's lab has a new professional officer, Vanessa Rashbrook. Eren Turak is organising himself to finish his experimental work on cereal aphids this year, and Lilian Blanco has some spotted alfalfa aphids in culture and is measuring what they do to their host plants. Dick Frankhama also has a new MSc student, Sue Borlaise, co-supervised by David Briscoe. She will use *Drosphila melanogaster* to evaluate genetic management strategies in conservation genetics. David, with Noel Tait, continues to work on onychophorans.

Two big events will occur just about when this issue goes to press; the first is Narelle Sale's MSc graduation and the second is Burke's Backyard (4th May?) featuring most of the School of Biological Sciences cavorting in front of the cameras while investigating biodiversity in a suburban garden.

Sydney University, Macleay Museum

Several people over the last two months have donated more than 15,000 insects to the Macleay Museum. After these collections have been valued many specimens will be considered for the Tax Incentive Scheme associated with the Arts. Most of the insects are beetles and come from Asia, Europe and South America enriched with specimens from Western Australia and Queensland.

The sawfly collection was returned from the US National Museum after being away for several years. Type material was found and John MacDonald, BCRI, Rydalmere, will curate and catalogue this collection.

Jenniler Gardiner, Adelaide, South Australia inspected the Buprestidae collection while she was in Sydney for a short visit. This collection is currently being curated and a catalogue of these beetles held in the Museum should be available by the end of the year. Dr G. Kuschel, Entomology Division, DSIR, Auckland, New Zealand, spent a day looking through the four cabinets of foreign weevils. His advice was most appreciated.

Sydney University, Medical Entomology Unit at Westmead Hospital

Richard Russell attended the Biting Midge Conference held in Surfers Paradise during February. Merilyn Geary and Richard are investigating the seroprevalence of dog heartworm antibody in humans in NSW and the vector competence of various mosquitoes for the filaria.

Peter Wells and John Clancy are continuing the arbovirus/vector surveillance for NSW this 'season' and to date it has been a particularly 'quiet' year with very little activity of Ross River virus although a number of other viruses have been isolated from coastal and inland areas; the rain experienced by the central coast of NSW has not extended inland and mosquito populations in most areas have been generally lower than last year. Peter will commence his Masters this year and will investigate several arboviruses and their mosquito vectors, we wish him all the best with his studies.

Stephen Doggett has spent much of the past few months in the field, with assistance from Richard and Merilyn, collecting ticks for his research project with Richard on Lyme Disease, but inclement weather conditions have curtailed many field trips. If anyone has any ticks or knows of heavily tick infested areas in coastal NSW, Stephen would be pleased to hear about them.

Overseas visitors to our unit included Dr Yehouda Braverman (a dipterologist) from Israel, and Dr Bert Cook (a veterinarian with an interest in biting flies) from New Zealand.

Department of Plant Pathology and Agricultural Entomology

The sectional strength in Entomology has been sadly depleted by the loss of Laurie Sanchez and Doug Rugg, both were technical officers within the Department. Laurie has gone to part-time work with the NSW Agriculture & Fisheries, Rydalmere, and Doug has joined Merck, Sharpe and Dohme.

Andrew Kotze has just returned from England where he has spent the last year working with Dr S.E. Reynolds at the University of Bath. The work involved looking at the mode of action of cyromazine on tobacco hornworm larvae. The

effects of cyromazine on the larval cuticle were examined, including experiments testing the cuticular mechanical properties. Andrew is currently at the University of Sydney working with cyromazine and its effects on the Australian sheep blowfly. This work is funded by an Australian Wool Corporation grant Andrew benefited immensely from the great cultural experience of being in Europe and will hopefully put this experience to good use in his future job.

Fred McDonald has been granted an ARC grant under the small grants scheme to work on a key to Australian Pentatomids.

Mohammed Moukahal has commenced studies towards a Diploma of Agriculture in Entomology. He will be carrying out a project under the guidance of Harley Rose on chlorpyrifos residues in soils.

School of Biological Sciences

Alfie Meats has been awarded an ARC grant together with Fred McDonald to work on factors enhancing the role of the parasitic wasp *Trissolcus basalis* (Wollaston) in the biological control of Pentatomid bugs.

University of New South Wales, CERIT

The past 3 months at CERIT have been notable for staff comings and goings and we have had a number of visitors. The calliphorid breeding room has been literally buzzing as CERIT staff have embarked on an increased experimental programme of testing, with a corresponding increase in washing up!

Natalie McCabe (Zoology major, UNSW) was appointed to replace Sharon Marsh (who has now become a full-time UNSW student) as Martin Shivas' T/O - only to get a better paid position in computing (poor old entomology) and in turn to be replaced by Julie-ann Short (Zoology major UNSW). We enjoyed having Natalie even though she was here for only four weeks and we wish her well in Qantek.

Both Chris Orton and Chris Virgona visited Melbourne — Chris V. went to confer with George Holan at CSIRO, Chemicals and Polymers, while Chris Orton contributed to an Australian Wool Corporation Seminar on resistance development in insects and helminths. Future decisions on research direction and funding will be influenced by this seminar.

Chris Orton is currently involved in sitting with other representatives from major entomological institutions in NSW on a working party of the NSW Entomological Society investigating entomological education in NSW.

Visitors to CERIT included Ian Simpson, chief Wool and Sheep Officer, NSW Agriculture and Fisheries, who conferred on future sheep blowfly extension plans, Peter Green, parasitologist Department Primary Industries Qld, who discussed blowfly attractants and possible collaborative projects, Colin Randell and associates, who discussed insect attractants, Dr Hans Rochling, Hoechst, W. Germany and David Kingston, Hoechst Australia, who discussed future research directions in chemical blowfly control, especially formulation technology. There have been a number of short visits from the public to look over CERIT.

Army Malaria Research Unit

In early February the unit welcomed a new member of staff. She is Liz Brooke, a recent graduate of University of Sydney, who will be assisting Tony Sweeney and Steve Frances with ongoing projects.

A mobile laboratory used previously as a field laboratory at Mildura, Victoria, has bene relocated to Cowley Beach, northern Queensland. The new location is ideal, as nearby rainforest abounds with numerous medically important arthropods awaiting closer study.

Recent overseas visitors to the unit include Dr Yehouda Braverman, from Kimron Veterinary Institute, Israel, who visited in mid February with Richard Russell. In mid March Dr Kevin Palmer from WHO, Kuala Lumpur, Malaysia visited to discuss unit research activities, while Dr Andrew Cockburn, from USDA, Insects Affecting Man and Animals Laboratory, Gainesville, Florida, USA, visited in early April to discuss his studies concerning US mosquitoes.

BCRI, Agriculture and Fisheries, Rydalmere

There have been a few staff changes in the Entomology Branch, during February and March. Paul Hughes left in mid February to take up a Technical Management position with Zoecon Australia. For those who wish to get in contact with Paul his new address is Zoecon Aust. Ltd, PO Box 101, North Ryde, Phone 805 3558 or Fax 888 3408. Laurie Greenup, previously Co- ordinator Pesticide and Pest Management and located at Rydalmere, resigned and commenced as consultant for the fruit and vegetable marketing authority. While Tamar Robinson finished working with the Blowfly section to study full-time at university. All the best for the future to them all!

With departures you see arrivals; so enter Amanda Whiles into the Blowfly section, Angiolina Condello into Taxonomy working with Murray Fletcher, and Russell Preece into Urban Entomology with Roger Toffolon (while Mike Heesom is overseas for twelve months). Let's hope they all enjoy their stay with the Branch.

Travel? Garry Levot visited CSIRO Entomology Canberra in late February. In late March Garry attended a workshop in Melbourne on pesticide resistance in organisms of importance to the wool industry which was sponsored by the Australian Wool Corporation. At the workshop, he presented two papers on resistance management in sheep blowfly and sheep body lice. In late March, Alan Clift visited mushroom farms near Melbourne to present seminars on safe use of pesticides in the mushroom industry.

Recent visitors to the Institute include Drs Jean-Jacques Herve and Alain Moreau (Roussel Uclaf) in February who discussed insect problems associated with livestock in Australia.

Australian Museum

Geoff Holloway remains in a serious but stable condition at St Vincent's Hospital, after his stroke in January. We all hope for a speedy recovery.

Max Moulds has been acting as temporary Collection Manager and will be here until early June. He has been causing dust to fly and is currently in charge of reorganising the Entomology Department Library. His book "Australian Cicadas" will be formally launched at the Museum in May.

Shane McEvey, has returned to Australia after working for 5 years in Paris at the Laboratoire de Biologie et Génétique Evolutives, CNRS. He is currently based at the University of Sydney and has recently been appointed Research Associate at the Australian Museum. He hopes to continue his research into the evolution and systematics of Drosophilidae. To this end, he and Dan Bickel drove to Melbourne (via the Erinunderra Plateau in east Gippsland) to retrieve the two cabinets of Ian Bock's drosophilid collection form La Trobe University and bring them back to Sydney. The collection is very rich and will be incorporated into the Museum's extensive acalyptrate holdings.

Other news in brief: Gerry Cassis spent three weeks in March collecting in Tasmania. Gunther Theischinger is to be congratulated for winning the LeSouef Award. Visitors included Geoff Williams from Taree looking at Coleoptera and obtaining some ID's for the plates of his book, and Ted Edwards from CSIRO.

Merilyn GEARY and Dan BICKEL
Regional Councillors

NEW SOUTH WALES COUNTRY AREAS

NSW Agriculture & Fisheries, Wollongbar

Christian Laumond from the Station de Researche Nématologie (INRA) visited Neil Treverrow in January to discuss the role of parasitic nematodes in management of Banana Weevil Borer.

NSW Agriculture & Fisheries, Tamworth

Sad news from Tamworth where Robin Gunning reports one of the Entomology laboratory's giant cockroaches was murdered one night by a large, itinerant gecko! Apparently the crime scene was quite shocking the following morning with the hapless cockroach "peeled like a prawn".

On the positive side, Nerida Coleman, for so long at the mercies of the vagaries of industry funding, has obtained relative security with her appointment as a government-funded Entomology Assistant.

John Hosking is going to Europe May 30 - September 12 to conduct a feasibility study on the biological control of Scotch Broom. He has recently returned from a short visit to New Zealand doing the same thing.

NSW Agriculture & Fisheries, Orange

Dr Victor Edge, Director of Entomology, visited Orange in early April for discussions with Graham Thwaite and Col Bower regarding current research programs.

Nason Chandra, a MSc student from the University of Western Sydney, visited Graham and Col to discuss his research on Integrated Pest Management. Nason is particularly interested in the IPM program for mites on apples and will be evaluating its implementation and adoption by growers. His studies will take him to all major Australian apple growing areas and ultimately he hopes to develop a set of recommendations to improve grower adoption of IPM.

Col and Graham have had a busy summer working with pesticides and mites. Numerous mite strains from around NSW and Australia have been tested for resistance to

clofentezine and hexythiazox. The current situation with European Red Mite is grim, with widespread resistance to the ovicides. Some strains have appeared to become resistant after as few as 2 or 3 sprays. On a brighter note, Col has successfully trialed a few new miticides which show promise for future mite control.

Mario Valvasori, from Incitec Ltd., visited to discuss White Fringed Weevil control using slow release insecticide granules.

NSW Agriculture & Fisheries, Yanco

Summer has been relatively quiet at Yanco, with few visitors or events to report. It was nice not to have fruit flies in the MIA this season; the major effects of the past year to eradicate the pest from the area seem to have succeeded, with no flies or maggots reported up to the time of writing.

Entomology was well represented at the Murrumbidgee Farm Fair held at the Yanco Agricultural Institute in early March. The theme of the display organised by the Entomology Section at Yanco was Integrated Pest Management. Great interest was shown by the public in examining the large numbers of live natural enemies, often in the process of devouring some pest of other! The dragonfly mobile whipped up overnight by Jenny Whitney also proved popular.

James Altman of Biological Services Ltd., Loxton, visited in March to obtain some predatory mites (*Typhlodromus occidentalis*) for his work on *Bryobia* mites. Discussions were also held with David James on biological control of mites and Spined Citrus Bug.

David James spoke at a growers' meeting at Narrandera and a sales representative (Incitec Ltd.) meeting at Wagga on biology and management of earth mites. Research directed by David has led to development of improved control of earth mites on bare earth.

Mark Stevens visited the Australian Museum and the Department's Laboratory at Glenfield in March for discussions on aquatic snail toxicology. He also took the opportunity to search out more of the literature on this subject.

Richard Faulder took advantage of the Easter break to visit an amateur arachnologist at Paringa, near Renmark, SA, who had female Red-headed Mouse Spider burrows marked out in his garden. While Richard was a week late to see the latest flight of spiderlings, he was still able to have a most useful visit.

The NSW State Government Backbench Committee on Agriculture visited Yanco in mid April. They were particularly interested in current entomological research projects at the Institute which are involved with development of biological control strategies for citrus and grapevine pests. They also inspected the new rearing facility for biocontrol agents of Paterson's Curse.

David JAMES
Regional Councillor

Overseas News

NEW ZEALAND

The first diagnosis of Dutch Elm Disease (the scolytid transmitted fungal pathogen, *Ceratocystis ulmi*) in the Southern Hemisphere occurred when it was identified at the Lynfield Agricultural Centre on January 3, 1990. The identification was based on cultures isolated from Elm shoots submitted by Auckland City Council Parks and Reserves for diagnosis and curative purposes. The Ministry of Forests is attempting to eradicate the disease from central Auckland before spread outside this area occurs.

Mike Dance, the Lynfield scientist who made the first diagnosis, has sent cultures to the Commonwealth Mycological Institute in the UK for strain typing. To pin-point a likely source (how quarantine was breached), it is important to know whether the NZ isolate is an Eurasian aggressive strain or a North American one. If the eradication scheme is unsuccessful, elms will be removed from the NZ landscape in the next 9-15 years. The strain type should indicate whether elm re-establishment with a different species may be feasible in future.

The disease is spread by four bark beetles, the vector in this case being the European elm bark beetle, *Scolytus multistriatus*. Successful eradication in this instance depends entirely on the detection and sanitation felling of every infected tree in Auckland city before the beetles emerge from their bark galleries. If one tree is missed, the disease will spread.

JOHN TENQUIST
New Zealand Correspondent

News from Affiliated Societies

ENTOMOLOGICAL SOCIETY OF VICTORIA

The first two general meetings for 1990 have been most informative.

In February, Tim New addressed the society on "Insects as Predators", and included illustrations of the structural adaptations which enable insects to prey on their hosts.

Ross Field was welcomed back from his travels through the north-western region of the continent, and he presented an exhibit on Lycaenidae which he collected along the way.

In April, John Osmelak from the Plant Research Institute, Burnley presented a very up-to-date account of the recent invasion of the Elm leaf Beetle in Victoria.

The honorary editor of the News Bulletin, John Burns has recently resigned, and we wish him well in his new business venture. Ken Walker has taken over his task for the time being.

Mark M. HUNTING
Representative Councillor

ENTOMOLOGICAL SOCIETY OF NEW SOUTH WALES

In recent months the Society has continued with its nomadic habit acquired over the past twelve months. In February, the meeting was held at the Forestry Commission of NSW Wood Technology and Forest Research Division at West Pennant Hills. Bob Eldridge displayed the recently-opened insectary which was followed by a talk on defects caused by insects and fungi in eucalypts used for veneer and plywood production by Debbie Kent. The meeting was capped off with some collecting at MV light thus allowing members to get something of a glimpse of the insect fauna of Cumberland Forest. A great night!

In March the AGM was held at the Australian Museum, and in the coming year there are changes in the Society council even though the faces (or for many of you, names) may seem very similar. John Macdonald was elected President (yes again, but only for one final year), with Max Moulds as Vice President, Murray Fletcher as Secretary, Ted Taylor as Treasurer, Dan Bickel as Editor, Mary Terras as Business Manager/Public Officer, Peter Gillespie as Circular Editor and Courtenay Smithers, Graham Brown, Marnie Holmes and Nik Williamson as councillors. The logo used for 1989, an illustration of *Phoracantha tricuspis* Newman (Coleoptera : Cerambycidae) by Eren Turak, has been adopted for another twelve months. The elections were followed by the presidential address entitled, "Environmental Entomology" ... and so passed the 1990 annual general meeting.

In April the tour of the entomological institutions of Sydney continued with the Society meeting at the University of Technology (Sydney). Our host Peter Miller, nobly assisted by Bryce Peters, gave members an outline of their research work on fleas and cockroaches and a tour of the facilities at the Broadway campus followed. In spite of rather dreadful weather, the meeting was well attended and Peter and Bryce are to be congratulated on their efforts.

The journey continues .... Stay tuned for next month's instalment when the Society plans to visit Sydney University for a presentation by Dr Shane McEvey!

John MacDONALD
Representative Councillor

ENTOMOLOGICAL SOCIETY OF QUEENSLAND

At the Annual General Meeting of March 12 Neil Gough gave his out-going Presidential Address entitled 'Aspects of integrated pest management with examples in ornamental entomology'. At the same meeting the following office bearers for 1990 were elected.

President:	Dr I.W. Forno
Senior Vice President:	Dr R.J. Raven
Junior Vice President:	Dr N. Gough
Honorary Secretary:	Dr R. Wylie
Honorary Treasurer:	Mr K.J. Houston
Publication Committee Convenor:	Ms G. Sames
Councillors:	Mr R.M. Bull
	Mr G. Daniels
	Dr G.G. White

The main business at the meeting held on April 9 was an address by Dr Patricia Mather (Queensland Museum)

entitled "Biological Science in Australia: then and now". On May 14 John Turner (DPI) will speak on Entomology and northern Australian Quarantine Strategy.

Our next meeting, to be held on June 12 will be a 'Notes and exhibits' evening where members and visitors are able to speak on entomological items of interest.

Greg DANIELS
Representative Councillor

1990 Listing of Postgraduate Projects in Entomology

AN AUSTRALIAN SURVEY

The 1990 list of projects seems to have remained fairly similar in overall numbers to the 1989 list. As usual, my thanks go to those who only had to be asked once to supply their information and got it in by the date requested. Names of institutional correspondents are recorded beside the institutions for which they gathered projects in the list following. It occurs to me that it may be time for a change: if anyone would like to relinquish the task of compiler for thei r university, perhaps they could find someone else to take over the role. Let me know and I'll change the mailing list for next year.

The purpose of the list is to let people know what research topics are being investigated by postgraduate students in Australia. Both students and supervisors can benefit by making contact with other institutions or individuals with similar interests, by sharing information and ideas and by avoiding duplication of effort.

On the statistical side, these remarks are made on the assumption that the lists still not available will be similar to last year's. At present we have about 240 projects on the list (241 at this stage last year). It is hoped to have listings for some of the institutions still outstanding in the next issue of "Myrmecia".

The recent series of amalgamations seems to have made some hidden differences to the list of institutions recorded here, and of course we would still welcome news from any other places with students doing thesis type work that has anything to do with insects. Our longstanding mailing list may no longer cover everyone. Once again, congratulations to all those who have graduated since this time last year. The Society wishes you success in your careers and invites your membership. And again, please forward any additions or corrections to me as soon as possible.

Dinah HALES
School of Biological Sciences
Macquarie University, NSW 2109
Phone (02) 805 8181

QUEENSLAND

UNIVERSITY OF QUEENSLAND

(Assoc.Prof. E.M. EXLEY)

Department of Entomology

BURWELL, C. A systematic study of some Entedontinae (Hymenoptera: Chalcidoidea: Eulophidae) (PhD).

CLARKE, A.R. Population biology of *Nezara viridula* in southeast Queensland with special reference to the egg parasitoid *Trissolcus basalis* (PhD).

CORCORAN, R. Physiological and behavioural mechanisms of heat tolerance of *Bactrocera tryoni* (MSc).

DAGLISH, G.J. Influences of host plant and temperature on the development of *Heliothis* species (PhD).

ELSON-HARRIS, M. The systematics of Tephritidae (Diptera) based on comparative morphology of immature stages (PhD).

EVANS, D. The impact of predators on Lepidoptera in the cotton ecosystem (MAgrSc).

FERNANDO, P. Aspects of the ecology of *Aphytis lingnanensis* Compere a parasitoid of *Aonidiella aurantii* (Maskell) (PhD).

FOLEY, D. Investigations of the *Anopheles punctulata* complex (PhD). (Jointly with **Tropical Health Program**).

FORRESTER, N. Management of insecticide resistance in *Heliothis armigera* (PhD).

FREEBAIRN, C. The sex determination, biology and taxonomy of a new genus of mermithid nematodes parasitising Australian mosquitoes (PhD).

GRIFFITHS, M. Genetic analysis of host preference and larval performance (PhD).

GRIMSHAW, J. The family Oxyopidae (Araneae : Arachnida) in Australasia (MSc).
HEARD, T. Aspects of the pollination biology of macadamia and cashew (PhD).
JONES, R. The population dynamics and mating behaviour of *Stethopachys formosa* on *Dendrobium* and *Epidendrum* (Orchidaceae) species (PhD).
KING, J. Systematics of some Australian Megachilidae (MSc).
MAYNARD, G. Studies on Australian bees of the genus *Leioproctus* Smith (PhD).
MEURANT, K. Study of the prothoracic gland/ corpus allatum/corpus cardiacum ring complex of the Australian blowfly larva *Lucilia cuprina* (PhD).
MILNE, J Host-plant relationships of polyphagous thrips (MSc).
MONTGOMERY, B. The elucidation of the evolutionary status of Queensland coastal *Lucilia cuprina* (MSc).
MURRAY, D. Population dynamics of *Heliothis* - factors influencing survival and development of the pupal stage (PhD).
PAVEY, C. Feeding ecology of insectivorous bats, with emphasis on prey specificity (PhD).
PERMKAM, S. Taxonomic observations on the Australian Trypetinae (Diptera : Tephritidae) (PhD).
RUNGROJWANICH, K. Effect of neem on the development of *Anopheles hilli* Woodhouse and Lee (Diptera: Culicidae) MAgrSt).
SCHOLZ, B. An evaluation of the potential of native egg parasites to control *Heliothis* on cotton (MAgrSc).
SPARKS, D. First instar survival of *Danaus plexippus* in relation to oviposition preference and plant factors (Hons).
TITMARSH, I. Population dynamics of *Heliothis* - factors influencing survival of immature stages on various host plants (PhD).
VAN KLINKEN, R. The biology of Diptera breeding in rainforest fruit (Hons).
WALKER, P. Biology and ecology of the pink-spotted bollworm *Pectinophora scutigera* (PhD).
WALLACE, H. Insect pollination of macadamia (PhD).
WILSON, L. Management and ecology of spider mites in cotton (PhD).
YARE, M. Insect pollination studies of custard apples (*Annona* sp.) (PhD).
ZHEN, CHANG SHENG The mode of operation of azadirachtin on *Heliothis* larvae and improvement of its formulation for use on cotton (PhD).

Microbiology Department
KLOSE, M. Transmission of tobacco streak virus and other pollen-borne viruses by thrips (PhD).
LLOYD, A. The bacteria associated with fruitflies and their host plants (PhD).
MURPHY, K. Colonization of the alimentary tract of *Dacus tryoni* (Queensland fruit fly) by bacteria, including dinitrogen-fixing strains (PhD).

Zoology Department
BROWN, M. Biological control of mosquitoes (MSc).
MUIR, L. Visual cues in host location behaviour by *Aedes aegypti* (Hons)

GATTON COLLEGE (DR E. HASSAN)

Plant Protection Department
DEAN, S. An investigation of bee repellency/bee toxicity of cypermethrin, applied in three separate formulations
MCCONVILLE, P.N. Investigation of the resistance levels of *Plutella xylostella* L. in the Lockyer Valley to pyrethroids (B.App.Sc.Rur.Tech.).
PRIJONO, D. Insecticidal activities of extracts of three tropical plants on the cabbage cluster caterpillar, *Crocidolomia binotalis* Zeller (M.Agr.Sc.).
TATE, S.D. An investigation of the insect galling of ornamentals (B.App.Sc.Hort.Tech.).
WALLIS, M.J. Testing the effects of chemicals used in citrus plant protection on the parasites of California Red Scale (B.App.Sc.Hort.Tech.).

Horticulture Department
HALL, I.A. The use of oil spray and reflective mulch for control of water melon mosaic virus in cucumbers (*Cucumis sativa*) (B.App.Sc.Hort.Tech.).

GRIFFITH UNIVERSITY
(Dr J. HUGHES)

School of Australian Environmental Studies
PILLSWORTH, M. The dynamics of a sessile predator, *Myrmeleon pictifrons* (ant-lion) (Neuroptera Myrmeleontidae) (PhD).

REINKS, J. Visual display behaviour in jumping spiders (Araneae — Salticidae): Morphological and microhabit correlates (PhD).

JAMES COOK UNIVERSITY
(Prof. R.E. JONES)

Zoology Department
BENSON, L. Allochthonous input and processing in a rainforest stream (PhD).
BRABY, M. The ecology of tropical satyrine butterflies (PhD).
DAVIS, A. The development of database management techniques for ecological survey data and its application to a study of ant communities (MSc).
DOWNES, M. Biology of subsocial spiders (PhD).
HURLEY, M. Insect herbivory on stinging-trees (MSc).
LOKKERS, C. Ecology of the green tree ant, *Oecophylla smaragdina* (PhD).
MOORE, K. Seed predation in mangroves (MSc).
NGIESTI, U. Arthropod communities in rainforest litter (MSc).
PRASAD, M. Host-seeking behaviour in herbivorous insects (MSc).
RAE, D. The ecology of sugarcane mealybugs *Saccharicoccus sacchari* (PhD).
SEYMOUR, J. Geographic variation in parasitoids of Australian *Heliothis* species (PhD).
SOMMER, L. The relationship between *Myrmecodia* and its resident ants (BSc Hons)
WILKIE, L. Taxonomy and prospects for biological control of the banana scab moth (PhD).
YULE, C. Life-history patterns of tropical stream insects on Bougainville (PhD)

GRADUATE SCHOOL OF TROPICAL VETERINARY SCIENCE & ENVIRONMENT

BELLIS, G. *Culicoides* transmission of Bluetongue (MSc).
PUTRA, A. Life cycle aspects of *Oncocerca gibsoni*, including vector competence of *Culicoides marksae*.

SOUTH AUSTRALIA

UNIVERSITY OF ADELAIDE
(Dr David COOPER)

Department of Entomology
DANGERFIELD, P.C. Review of Australian Cardiochilinae (Braconidae: Hymenoptera) with special reference to species of agricultural importance (MAgrSc).
DEBARRO, P. Population ecology of cereal aphids and the transmission of barley dwarf virus in wheat in the low rainfall areas of South Australia (PhD).
FIELD, S.A. Courtship and sexual selection in the parasite wasp *Cotesia rubecula* (BSc Hons).
FITZGIBBON, F. Integrated management of woolly apple aphid *Eriosoma lanigerum* in South Australia (PhD).
JENNINGS, J. The systematics and zoogeography of the Hyptiogastrinae (Hymenoptera: Gasteruptiidae) (MAgrSc).
LARDNER, R. Comparison of host-stage selection and sex allocation by parasitoids of the cabbage leafminer, *Liriomyza brassicae* (Diptera : Agromyzidae) (PhD).
MADDEN, C. The use of morphological deformities in chironomid larvae (Diptera: Nematocera) as an indicator of pesticide and heavy metal pollution in water catchment areas of South Australia (PhD).
MADHUSUDHAN, V. Interaction of the spotted alfalfa aphid and its host plant (PhD).
MORRIS, B. Blowfly larvae as forensic indicators in estimating time of death (MAgrSc).(MAgrS).
PENG, Z. Feeding determinants in aphids (PhD).
WEINSTEIN, P. Parasite interactions in trigonalid wasps (PhD).

Department of Plant Pathology
CHEN, B. Cucumovirus transmission by *Myzus persicae* is determined solely by its coat protein (PhD).
GEERING, A.D.W. A study of the epidemiology of cucumber mosaic virus in lupins (PhD).
LIGAT, J.S. A comparison of Australian pea seed borne mosaic virus isolates (PhD).
ZHANG, Q. A study of the molecular biology of lettuce necrotic yellow virus as it infects the aphid vector, *Hyperomyzus lactucae* (PhD).

Department of Genetics
ANDERSON, D.G. Population genetics in *Drosophila* (PhD).

Department of Zoology

JOHNSON, L.C. The role of temperature in host seeking in *Culex quinquefasciatus* Say (BSc Hons).

LLOYD, J. The taxonomy and biology of *Oecetis* species in the Adelaide region (BSc Hons).

TAYLOR, S.P. Infection of the black Portuguese millipede, *Ommatoiulius moreletii*, by the nematode *Rhabditis necromena* (BSc Hons).

WALLMAN, J. Aspects of successional ecology in arthropods in carrion (BSc Hons).

FLINDERS UNIVERSITY (Dr D.A. Mackay)

School of Biological Sciences

GROSS, C. Ecological implications of differences in flowering phenology in a mallee woodland community (PhD).

NEW SOUTH WALES

THE UNIVERSITY OF SYDNEY
(Dr H.A. ROSE)

Department of Agricultural Chemistry

BUNGARD, S. Biochemical resistance mechanisms in *Rhyzopertha dominica*. (PhD).

LEE, S.-E. Biochemical resistance mechanisms in *Oryzaephilus surinamensis* (MScAgr).

MILSON, J. Development of methods for studying the hydrolysis of fenitrothion and fenitrooxon by enzymes from grain storage pests (MScAgr).

SMART, J. The role of esterases in resistance to fenitrothion and chlorpyrifos-methyl in *Oryzaephilus surinamensis* (BSc Hons).

Department of Biochemistry

CHAPPELL, D. Nitrogen metabolism in termites (Isoptera) (PhD).

SCRIVENER, A. M. Cellulases in the cockroach, *Panesthia cribrata* (PhD).

VEIVERS, P. Role of symbionts in cellulose and glucose digestion in insects (PhD).

WILLIAMS, C. Effects of carbon dioxide on termite metabolism (BSc Hons).

School of Biological Sciences

GIBBONS, D.S. Pollination ecology of *Hakea* (PhD).

School of Crop Sciences

GWYNN, C. Mapping genes responsible for inheritance of scutellar bristle number in *Drosophila melanogaster* (MScAgr).

Department of Plant Pathology and Agricultural Entomology

DE KEYZER, R. Systematics of the Obriini (Coleoptea : Cerambycidae) of Australia with notes on oriental species (MScAgr).

FAULDER, R.J. Systematics and biogeography of the spider genus *Missulena* (MScAgr).

VISETSON, S. Biochemical insecticide resistance mechanisms in the rust-red flour beetle, *Tribolium castaneum* (PhD).

ZHANG, J. Cellulose and starch metabolism in two cockroaches (MScAgr).

MACQUARIE UNIVERSITY
(A/Prof D. HALES)

School of Biological Sciences

BLANCO, L. Interactions between aphid saliva and plants (PhD).

BORLAISE, S. Modelling conservation genetics problems in *Drosophila melanogaster* (MSc).

CLAXTON, S.K. The biology of terrestrial tardigrades (MSc).

HORWOOD, M.A. Comparison of effects of juvenile hormone deficiency and parasitisation in the Australian plague locust (MSc).

HUGHES, L. Dispersal of seeds by ants (PhD).

HUNT, S.M.N. Transformation of *Drosophila melanogaster* with anti-sense *white* locus constructs (MSc).

KENNEDY, C.M.A. Biology of Australian Pseudoscorpionida (PhD).

LEFEBVRE, M. Responses of honeybees to electromagnetic stimuli (PhD).

RODGERSON, L. Comparison of ant seed dispersal on infertile and fertile soils (PhD).

SHUTER, E. Arthropods on bracken (MSc).

TURAK, E. *Sitobion* species on grasses and cereals in Australia (MSc).

Watson, K. Effects of plant substances on ant colony demography (MSc).

UNIVERSITY OF NEW SOUTH WALES
(Prof. R.H. Crozier)

School of Biological Science
GOLETSOS, C. Defensive behaviour of aphids (MSc).
HERBERSTEIN, M. Foraging behaviour of orb-weaving spiders (BSc Hons).
KOULIANOS, S. Mitochondrial DNA variation between Australian honeybee strains (BSc Hons).
MCLEOD, L.J. Overwintering strategies of *Lucilia cuprina* in the arid zone (MSc).
OSZARAC, N.B. Characterization of a transcription unit within the *flightless* region of *Drosophila melanogaster* (BSc Hons).

UNIVERSITY OF WOLLONGONG
(Mr P.M. TAP)

Department of Biology
TAP, P.M. Arthropods and the effect of fire in Heathland (PhD).

UNIVERSITY OF NEWCASTLE
(Dr B. CONROY)

Department of Biological Sciences
COLLIE, T. Seasonal dimorphism in the evening brown butterfly, *Melanitis leda* (PhD).

UNIVERSITY OF WESTERN SYDNEY
(R. SPOONER-HART)

Faculty of Agriculture
CHANDA, N. Farmer perception and acceptance of integrated pest management programmes (MSc).

Faculty of Horticulture
SINGH, S. Biology and control of the rice leafroller *Marasmia exigua* (Lepidoptera: Pyralidae) in Fiji (PhD).
JOHNSON, S. Field evaluation of *Apis mellifera* in Southeast Asia (MSc).

VICTORIA

LA TROBE UNIVERSITY
(Dr T. NEW)

Department of Zoology
BARRASS, I.C. Population biology of mealy bug on pears (MSc).
BRITTON, D.R. Studies of Lepidoptera on native and introduced trees (MSc)
BUCHANAN, G.A. Insect population ecology: *Phylloxera* on grapes in Victoria (PhD).
FELL, J.M. An ecological study of three species of scorpions in Victoria (MSc).
HAWKING, J. Distribution and ecology of Odonata in the Kiewa River System (MSc).
HOCHULI, D.F. Feeding biology of the armyworm (MSc).
KOBELT, A.J. Population dynamics of native budworm in field peas (MSc).
MCDONALD, G. Dispersal and phenology of armyworms (PhD).
POIANI, A. Avian ecology and mating systems (PhD).
SCHMIDT, E.R. The systematics and biogeography of the Psocoptera of Tasmania (MSc).
SILBERBAUER, L.X. Population biology and sociality of *Exoneura* in relation to fire regimes (MSc).
SMITH, A.M. Biology and control of the pea weevil (PhD).
WALKER, K.L. Taxonomic revision of *Lasioglossum* (PhD).

Department of Genetics and Human Variation
BLOWS, M. *Drosophila* ecogenetics (MSc).
JERMIIN, L. Evolution and biogeography of ants studied with mtDNA sequences (PhD).

School of Agriculture
BOURNE, J. Isolation of gut membrane protein and establishment of cell lines from *Lucilia cuprina* (PhD).
COLLINS, B.J. Isolation of molecules from larvae of *Lucilia cuprina* which affect inflammation in sheep (MSc).
FRY, K.L. Production of monoclonal antibodies against antigens of *Lucilia cuprina* larvae (MSc).
HOLT, H. Isolation of molecules from *Lucilia cuprina* that affect cellular integrity and function in sheep (MSc).
O'MEARA, T.J. Analysis of skin responses in sheep resistant and susceptible to the blowfly *Lucilia cuprina* (PhD).
NESA, M. Inflammation responses in sheep bred for resistance or susceptibility to fleece rot/blowfly strike (MSc).

MONASH UNIVERSITY (Dr B. Roberts)

Department of Botany and Zoology

BARRY, M. Predator-prey interactions between *Daphnia* sp. and Notonectidae (PhD).

BASUKI, E. Analysis of developmental hormones in *Lucilia* (MSc).

BROOKS, S.S. Recolonisation dynamics of macro-invertebrates in a temporary stream (PhD).

CLISSOLD, F. Identification of ecdysteroids involved in oocyte development of Australian sheep blowfly *Lucilia cuprina* (MSc).

CLOSS, G. Predator/prey relationships in a stream environment (PhD).

COLLIER, M.A. Analysis of reproductive hormones in *Lucilia* sp. (PhD).

COY, R. Nematodes and arthropods in soil and litter of *Eucalyptus regnans* forest (PhD).

GAWNE, B. Ecology of *Agapatus* sp. in Taggerty River (PhD).

GREEN, P. The role of terrestrial crabs in structuring rainforest on Christmas Island, Indian Ocean (PhD).

KULKARNI, S. Analysis of development and developmental hormones in the light brown apple moth, *Epiphyas postvittana* (MSc).

O'CONNOR, N. Ecology of lowland streams in northern Victoria (PhD).

O'LEARY, P. Grazing interaction of aquatic invertebrates on rocky shores (Hons).

WALLACE, D. The pattern and consequence of mite association with leaf domatia of *Cissus* (Vitaceae) and *Coprosma* (Rubiaceae) (PhD).

Genetics Department

AGROSTIS, A. DNA restriction map variation using four base-cutter endonucleases at an enzyme locus in natural populations of *Drosophila melanogaster* (PhD).

MATTHEW, P. Molecular and population genetics of a naturally occurring 37-base-insert variant of the alcohol dehydrogenase gene of *Drosophila melanogaster* (PhD).

ROSS, J. Gene expression and DNA haplotype variation in the glycerol-3-phosphate oxidase locus of *Drosophila melanogaster* (PhD).

UNIVERSITY OF MELBOURNE
(Dr J. MARTIN)

Department of Genetics

ADCOCK, G. Insecticide resistance in *Drosphila melanogaster* (MSc)

ANDREWS, J.R. The function of the *suppressor of stoned* locus in *Drosophila melanogaster* (PhD).

BULL, A. The molecular genetics of calmodulin binding proteins from *Drosophila melanogaster* (PhD).

CHEN, Z.Z. Molecular and cytological studies in dipteran insects (PhD).

DAVIES, A. Genetic analysis of the *scalloped wings* locus in *Lucilia cuprina* (PhD).

FABB, S. Storage proteins in *Chironomus* (PhD).

MERAKOVSKY, J. The molecular genetics of *Drosophila* stoned gene (MSc).

MORGAN, M. The molecular genetics of the *shibire* locus in *Drosophila melanogaster* (PhD).

O'FARRELL, K. Fitness and asymmetry modification in *Lucilia cuprina* (BSc Hons).

PETROVICH, T. Molecular and genetic studies of the *suppressor of stoned* locus in *Drosophila melanogaster* (PhD).

PETTIGROVE, V. Taxonomy and ecology of several Chironomidae species (MSc).

DEAKIN UNIVERSITY
(D.J. MOLONEY)

School of Biological Sciences

MOLONEY, D.J. Vegetation regeneration and small mammal recolonization in fire-affected areas of the Airey's Inlet/Anglesea region, Victoria (includes insect pitfall trapping and scat analysis) (PhD).

WESTERN AUSTRALIA

CURTIN UNIVERSITY OF TECHNOLOGY

(Dr J.D. MAJER)

School of Biology

PARK, H.C. Role of the termite *Drepanotermes tamminensis* in nutrient cycling in two wheatbelt vegetation types.

UNIVERSITY OF WESTERN AUSTRALIA

(Dr W. BAILEY)

Department of Zoology

AROMNA, S.S. Host locating strategies in lepidopterous parasitoids (MSc).

DOLSOPON, S. Fecundity and sex ratio of mixed species of scale parasites, *Comperiella bifasciata* and *Aphytis melinus* (PhD).

LABEL, L. Factors controlling the distribution of Trichoptera in freshwater streams (PhD).

LILLYWHITE, J. Immunological studies of predation on dung pads (MSc).

MURRAY, B. Insect communities in freshwater streams (PhD).

WATANASIT, S. The reproductive biology of Odonates (PhD).

Department of Geography

LOBRY de BRUYN, L.A. The role of ants and termites in modifying soil properties in naturally vegetated and agricultural environments (PhD).

AUSTRALIAN CAPITAL TERRITORY

AUSTRALIAN NATIONAL UNIVERSITY

(Dr P.J. Gullan)

Department of Botany, Faculty of Science

GREEN, J.L. Resource partitioning in two species of mygalomorph spiders (BSc Hons).

VRANJIC, J.A. The influence of gum tree scale insects (Homoptera: Eriococcidae: *Eriococcus coriaceus* Maskell) on the growth of their host plants, *Eucalyptus* spp. (PhD).

WILLIS, A.J. Impact of the biological control mite *Aculus hyperici* on non-target native *Hypericum* species (PhD).

Department of Zoology, Faculty of Science

ARNEY, M.C. Control of *Eriococcus* species (Coccoidea: Eriococcidae) in urban areas (Grad Dip Sci).

MCDOUGALL, S.J. The effect of ground cover on the arthropod community of a nectarine orchard at Araluen, N.S.W. (BSc Hons).

MILLER, L.R. Systematics of Nasutitermitinae (Isoptera) (PhD).

QIN, T.K. The phylogeny and biogeography of the wax scale insects, *Ceroplastes* species (Hemiptera: Coccidae) (PhD).

ROACH, A.M.E. Host relationships of Christmas beetles on eucalypts at Millpost, N.S.W. (BSc Hons).

TRUEMAN, J.W.H. Odonate taxonomy and phylogeny (PhD).

Centre for Visual Sciences, RSBS

DUBOIS, R. Elementary motion detection in insects: pattern recognition and machine vision systems (PhD).

HOLMQVIST, M. Physiological properties of visual neurons in insects (PhD).

JIAN, S. Recording from fly brain: object and motion detectors (PhD).

JIN, Z.L. Development of software for visual pattern generators for experimental stimuli: neurocomputing of neural nets (PhD).

SUN, X. Recording from butterfly brain: object and motion neurons (PhD).

Molecular Neurobiology Group, RSBS

SCHUPPLER, U. Genetic and molecular characterization of a small segment of the *Drosophila melanogaster* genome containing a collagen-like gene: genes, transcripts and genetics (PhD).

Ecosystem Dynamics Group, RSBS

HODDA, M. Interactions between harvester termites and vegetation in a tropical savanna at Kapalga, NT (PhD).

Molecular Population Genetics Group, RSBS

NINHAM, J. Population genetics and molecular biology of an enteroparasitic gregarine and its grasshopper host *Caledia captiva* (PhD).

REED, D.S. Molecular analysis of low activity glycerol-3-phosphate dehydrogenase — natural genetic variance in *Drosophila melanogaster* (PhD).

SYMONDS, J.E. The characterization of an alphaglycerophosphate dehydrogenase variant in *Drosophila melanogaster* (PhD).

CSIRO Entomology, jointly with ANU

CAMPBELL, P.H. Molecular and genetic characterization of juvenile hormone esterase in *Drosophila melanogaster* (PhD).

DEMAJNIK, J. Evolution of multigene families in *Drosophila melanogaster* (BSc Hons).

DENT, S. Characterisation of pheromone-specific esterase in the light-brown apple moth, *Epiphyas postvittana* (BSc Hons).

KAROTAM, J. Variation at the Esterase 6 locus in *Drosophila simulans* and *Drosophila mauritiana* (PhD).

MYERS, M.A. Protein engineering in *Drosophila* (PhD).

PARKER, A.G. Molecular analysis of insecticide resistance in the Australian sheep blowfly, *Lucilia cuprina* (PhD).

ROURKE, I.A.. Hormonal regulation of juvenile hormone synthesis in *Heliothis* spp. (PhD).

SANDS, M. Control of oviposition by male accessory gland factor in *Lucilia cuprina* (BSc Hons).

SPACKMAN, M. Characterisation of the E3 homologue in *Drosophila melanogaster*(BSc Hons).

SYMTH, M.J. The biology of *Dialectica scalariella* (a leaf-mining moth) and its effect on *Echium plantagineum* (Paterson's Curse) and other related species (Grad Dip Sci).

Van PAPENRECHT, E.A.Differences in the regulation of Esterase 6 among sibling *Drosophila* species (PhD).

VICKERS, R. The influence of codling moth female sex pheromone on mating behaviour and its potential as a mating disruptant (PhD).

TASMANIA

UNIVERSITY OF TASMANIA

(Dr J.L. MADDEN)

Department of Agricultural Science

CANDY, Steve Life table analysis of the developmental biology of *Platypus subgranosus* and an investigation of the pattern of attack on the host tree *Nothofagus cunninghami* (MAgrSc).

CAO YONG Biological control of two-spotted mite infesting hops (MAgrSc).

HAIFENG, LI Leaf chemicals and host tree selection by the eucalypt-defoliating beetle, *Chrysophtharta bimaculata* (Olivier) (Coleoptera : Chrysomelidae) (PhD).

IRESON, JOHN Studies on lucerne flea and other Collembola in the Tasmanian cultural steppe (PhD).

McQUILLAN, Peter The taxonomy, ecology and host plant relationships of some Tasmanian cockchafers (PhD).

MENSAH, Robert Biology and integrated control of the psyllid, *Ctenarytaina thysanura* infesting boronia (PhD).

PEARN, Susy The development of on-farm production of entomogenous fungi for use in controlling soil inhabiting pasture pests (MAgrScQual).

RATH, Andrew *Metarrhizium anisopliae* as a control agent for the Red-Headed Cockchafer, *Adoryphorus couloni* (PhD).

SRITHONGCHAI, Wanphen Dynamics of aphid-borne plant virus disease (PhD).

STEINBAUER, M.J. The biological activity of *Schinus molle* against insects (BAgSc Hons).

SUWANBUTR, Sutohn Biology, ecology and control of lucerne aphids (PhD).

Department of Zoology

(Dr A.A.M. RICHARDSON)

JACKSON, Jean Taxonomy and functional morphology of three families of Trichoptera (PhD).

KRASNICKI, Tom Studies on the evolutionary and population genetics of Tasmanian Odonata (PhD).

NORTHERN TERRITORY

NORTHERN TERRITORY UNIVERSITY

(Dr C.J. WEBB)

Faculty of Science

FOTI, F. The possible nutritional/medicinal value of some termite mounds used by Aboriginal communities of the Northern Territory (MSc).

Research Grant Report

Report to the Executive of the Australian Entomological Society on a Study Visit to Queensland, Monday 15 — Friday 19 January, 1990, partially funded by an AES Grant.

Ian BARRASS
Institute for Irrigation and Salinity Research,
Tatura, Victoria, 3616.

The Longtailed Mealybug, *Pseudococcus longispinus* (Pseudococcidae : Hemiptera) is an important pest of pear orchards in Victoria's Goulburn Valley. In the absence of disturbance from broad spectrum insecticides it is often controlled at very low levels by its hymenopterous parasitoids. One of these, *Tetracnemus* (*Anarhopus*) *sydneyensis* (Hymenoptera : Encyrtidae), is native to the Goulburn Valley and is a potential biological control agent in commercial pear orchards. Unfortunately, *T. sydneyensis* has proved difficult to rear in laboratory cultures.

The combination of reduced funding for travel from within the Department of Agriculture and Rural Affairs, and problems in rearing *T. sydneyensis* made the new Australian Entomological Society Research Grants an excellent opportunity to visit some of the groups who had successfully bred encyrtids in laboratory cultures.

Don Sands (CSIRO Long Pocket Laboratories) has a broad experience in culturing encyrtid wasps and consented to my spending a week at his laboratory in Brisbane. Don was a generous and accommodating host, fitting my visit between field trips and overseas travel. Similarly, all of the people I visited during my week in Brisbane went out of their way to make themselves available and helpful.

I spent most of Monday morning with Don discussing the economic importance, distribution, and ecological features of some of the various species of the fruit piercing moths he is studying, *Eudocima salaminia* (Noctuidae : Lepidoptera) and *Othreis fullonia* (Noctuidae : Lepidoptera). We also talked about some of the features that can make culturing some of the Encyrtidae difficult and developed a check list of the potential reasons for the difficulties with my own cultures of *T. sydneyensis*. The environmental conditions required for mating vary widely in encyrtids and individual species may require well ventilated cages, a sprig of foliage, and even dappled light.

Monday afternoon was spent with Rose Broe and Veronica Brancatini who are working with Don Sands. Rose spent a large part of the afternoon showing me how they were maintaining their cultures of *E. salaminia* and *Ooencyrtus* spp. (Encyrtidae : Hymenoptera). Some of Roses' suggestions on feeding and handling have already been put in place in my own laboratory. Veronica showed me the field breeding cages for moths at Long Pocket and told me how the system she was using had evolved.

Tuesday morning I drove to Nambour to visit Dan Smith (Department of Primary Industry, Queensland). Dan has had a broad experience in culturing wasps for release in biological control programmes and an extensive knowledge of literature on the Encyrtidae. Dan was familiar with medium and large scale rearing techniques for parasitoids and spent some time discussing these and how the media used for breeding the host can play a role in effecting oviposition and the sex ratio of the emergent parasitoids.

While I was at Nambour I also spent a few hours with Geoff Waite discussing his work in control of lychee erinose mite, *Eriophyes litchii* (Eriophyidae : Acari), macadamia nutborer, *Cryptophlebia ombrodelta* (Tortricidae : Lepidoptera) and his coming trip to China. Geoff also explained to me the circumstances of his finding and identifying Western Flower Thrip, *Frankliniella occidentalis* (Thripidae : Thysanoptera) in two shipments of strawberries which had supposedly been fumigated before exit from US and then inspected on entry to Australia.

For any researcher who is also expected to take on some extension activities no visit to the DPI Nambour could be complete without a visit to the Resources Centre were farmers can access information on a wide range of information. Previous visitors from the I.I.S.R. Tatura to the DPI Nambour had told me about the Resources Centre and had started to develop a similar system at Tatura. I was able to test out the system by watching a short video showing aspects of breeding release of parasitoids to control citrus scales. It had extremely good commentaries from notable Queensland entomologists such as Elaine Brough (DPI Indooroopilly) and Dan Papacek (Bugs for Bugs, Mundubbera), as well as Dan Smith. Under the current funding regimes and the greater push for instantly extendable research, systems like this are likely to become

more common in the Victorian DARA over the next few years.

Wednesday was spent sampling for fruit piercing moth eggs in a rain forest gully at Mount Coot-tha. Don has been responsible for the regeneration of rain forest in this small gully near his house and has replanted most of the rain forest species that can be found there today. Among these is *Stephania japonica* (Menispermaceae), the native host for larval *Eudocima salaminia*, which makes the gully an excellent experimental site for the group's work.

Elaine Brough kindly found time to see me between other appointments Thursday morning and we spent an hour and a half talking about her experiences in culturing encyrtids and some methods to make observations of their behaviour. Elaine also suggested some features to build into cages and some others to avoid. It was also pleasing to hear of Elaine's work in research extension, to make a few observations on how new ideas are adopted in the Goulburn Valley, Victoria, and compare these with Queensland.

Rose Broe maintains field sites north of Brisbane in the Glasshouse Mountains and at the Mary Cairncross Park. Visiting these sites with Rose, I was able to see how they have set up their field experiments and take a closer look at some local species, wait-a-while and leeches.

Ted Dahms (Queensland Museum) has provided taxonomic support for my projects over the last four years. In this time we had never met and I was pleased to be able to spend a few hours discussing encyrtids and biological control programs on Friday before I returned to Victoria. Ted has been working on a major revision of the Encyrtidae, an important group in biologically based control systems. Such a work will provide vital source material for all workers using encyrtids as biological control agents, this will become an increasingly large group as biological control programs are expanded. With this in mind we spent some time discussing the vital role of taxonomists in integrated pest control programmes and from where research funds for this work are likely to come.

I would like to thank the Australian Entomological Society for the travel grant that made my trip to Queensland possible, and to thank all of those who assisted me and made me feel so welcome during my stay. In particular I would also like to thank CSIRO Indooroopilly for the use of their facilities.

Research Requests

National Co-Ordinated Insect Pest Surveys

The Bureau of Rural Resources has recently established a group of scientists funded by the Australian Quarantine Inspection Service (AQIS) to determine the nature, and review the results, of insect (and plant pathogen) pest surveys carried out by State Departments, Universities, CSIRO etc. The impetus for the project comes from the Lindsay Report (1988) titled "Australian Quarantine Requirements for the Future" and especially "... *[that] there should be an expanded national co- ordinated program of surveying and monitoring for pests, diseases and their likely hosts and vectors in Australia*".

The initial objectives are:

- to organise and co-ordinate a targeted surveying and monitoring program attuned to the needs of plant quarantine
- to analyse and report that information obtained from these programs, and
- to identify existing sources of information and methods to access/network this data.

To achieve this, it is of course necessary to establish the survey and monitoring programs past, present (and future), the sort of data being captured and its format. At the time of writing heads of various Entomology Branches have been contacted formally, to (hopefully) provide information on pest surveys either formal or incidental to other entomological endeavours. Responses have been encouraging, but more information and comment is sought especially from the field entos who are actually doing surveys.

The type of information required would answer the following questions:

1. The orientation of the survey, i.e. crop or pest driven and indicate which crop(s)/pests(s) e.g. Sitona weevil on lucerne and clovers, pests of lucerne
2. A brief reason for the survey/monitoring e.g. basic biology, thresholds for control, distribution and occurrence
3. The time frame and regularity e.g. weekly over 3 summers, monthly for one year June 1988 to May 1989

4. The region and scale e.g. NSW by crop, all the orchard blocks of the Armidale region
5. The form of the data e.g. genus and species dentified with specimens and labels, data sheets of locations, dates, sightings, sweepings, damage, on database or in exercise books etc.

Comments from anybody who felt so inclined on the above would be welcome, along with perceived survey needs and directions and your own idiosyncrasies or fetishes on the subject.

The information should be sent to:

Matthew CAHILL
Plant and Natural Resources Branch
Bureau of Rural Resources
[John Curtin House
Brisbane Avenue
BARTON ACT 2600]
GPO Box 858 CANBERRA ACT 2601
Phone: (06) 272 5197 Fax: (02) 2724896

Guide for Entomologists

An Iraqi entomologist has written announcing that he is preparing a guide for entomologists. He requests information on names of identification specialists in Australia, names of entomological societies, names of companies producing artificial diets and names of companies, laboratories or institutes producing and selling insect predators and parasites. Those who can assist him are invited to contact him directly:

Nazar M. AL-MALLAH
Dept of Plant Protection
College of Agriculture
Hamman Al-Alil, Mosul
IRAQ

NEW DIRECTOR FOR BUREAU OF FLORA AND FAUNA

Dr Barry Richardson (above right) has been appointed as the new Director of the federal Bureau of Flora and Fauna. He is an expert in the genetic diversity of animal populations and has qualifications and extensive experience in zoology and ecology. He is currently President of the Australian Mammal Society and Chairman of the Fauna Sub-committee of the Australian Academy of Science.

The Bureau of Flora and fauna is responsible for two key environmental projects. The Australian Biological Resources Study is a long-term exercise to document the great variety and distribution of Australia's flora and fauna. A major publication released last year on the mammals of Australia which was co-edited by Dr Richardson won a Royal Society of NSW prize for the best zoological work of the year.

The new Environmental Resources Information Network project will be an advanced system for providing access to key information necessary for decision-making on the environment.

In taking up the Directorship Dr Richardson noted that the Bureau of Flora and Fauna has a creditable record but much remains to be done to develop a better understanding

of the scientific fundamentals of the Australian environment. The Bureau will be active in promoting work in research institutions across the country and in drawing together information on the environment. Prior to becoming Director Barry led the fauna programme of the Bureau.

IPM VIDEO PROGRAMME

The Queensland Department of Primary Industries has produced a video programme, titled *Best Friends Natural Enemies*, aimed at educating the public, and particularly farmers, about the advantages of integrated pest management. The video highlights the co-ordinated approach among QDPI staff, growers and a private consultant that results in reduced pesticide use while maintaining fruit quality and profitability. It shows the scouting for the pest species in orchards and the rearing of selected biological control agents. These predators and parasites are then shown at work. The research process is explained, together with the control decisions necessary in a large citrus orchard. Parts of this video have been screened on Channel 9's national television environmental program, *Earth Quest*, and on the Channel 7 news.

Best Friends Natural Enemies serves to promote integrated pest management in a number of different horticultural crops and is a valuable aid for citrus growers, extension officers, agribusiness people, educators, students and environmentalists.

The video is available by mail order in VHS format only. The cost (including postage) is $25.00 within Australia or $35.00 overseas. Orders should be sent to:

Information Branch
QDPI Publications
GPO Box 46 BRISBANE QLD 4001

AUSTRALIAN ACADEMY OF SCIENCE

The Australian Academy of Sciences has announced a number of fellowships and travel grants which it administers as follows:

(i) **Postdoctoral Fellowships in the U.K. — Awards for Scientists 1991.** Five two-year awards awarded annually, including stipend. Deadline 1 October 1990.

(ii) **Bede Morris Fellowship — Grant for Scientific Visit to France 1991.** Travel and living allowance for up to six weeks. Deadline 1 August 1990.

(iii) **Scientific Exchanges with Japan 1991/92.** Caters for short term (3-6 weeks) and long term (6-12 months) visits which should include collaborative projects with Japanese scientists. Deadline 1 September 1990.

(iv) **Postdoctoral Fellowships in Japan — Awards for scientists 1991/92.** Travel, stipend and living allowance costs for visits of 12 months (extendable for an extra year) to Australian scientists under 35 years of age. Deadline 1 November 1990.

(v) **Scientific Exchanges with China 1991/92.** Proposals may be for short term visits (3–6 weeks) to collaborate with Chinese scientists or longer term visits to carry out more extensive research projects. Deadline 1 December 1990.

(vi) **Scientific Exchanges with the U.K. 1991.** Applicants should propose a collaborative research project, or a specific activity, which has been developed in consultation with an appropriate host scientist in the United Kingdom. Deadline 1 July 1990.

(vii) **Selby Fellowship.** Tenable for 2 week–3 month visits to Australia by a distinguished overseas scientists for public lecture/seminar tours. Deadline 30 June 1990.

(viii) **Boden Research Conferences.** Funding to arrange small specialist research conferences in the biological sciences. Deadline 31 July 1990.

Extra information and application forms for all of the above are avilable from:

The Australian Academy of Science
GPO Box 783
Canberra.ACT.2601

Coming Events

19TH INTERNATIONAL CONGRESS OF ENTOMOLOGY

The next International Congress will be held in Beijing, China, during the period June 28 –July 4, 1992 and is sponsored by the Entomological Society of China. The first announcement brochure has now been circulated and the second announcement brochure will be sent in March 1991 to those who have lodged their names with the Secretariat. To obtain the first announcement please write to: Prof. Z.I.Zhang, Secretary-General XIX International Congress of Entomology, 19 Zhongguancun Lu, Beijing 100080, CHINA. Tel: (861)2563011. Fax: (861) 2565689. Telex:222337 ICCST CN.

17TH PACIFIC SCIENCE CONGRESS

XVII PACIFIC SCIENCE CONGRESS

Towards the Pacific Century: The Challenge of Change

Will be held in Honolulu, Hawaii on May 27–June 2 1991. Major symposia include: Global Environmental Change — Pacific Aspects; Population, Health and Social Change; Science and Culture; Biological Diversity; Emerging Technologies and Development; Frontiers of Physical Science: New Technological Advances and Pacific Science.

COLLOQUIUM — BEHAVIOUR AND PHYSIOLOGY OF BEES

Organised jointly by the Royal Entomological Society of London and the International Bee Research Association this meeting will be held in London on 11-12 July, 1990 at the Queens Gate headquarters of RESL. Accommodation is being made available at Imperial College. Brochure available from RESL, 41 Queens Gate, London SW7 5HR, UK.

SYSTEMATICS AND BIOGEOGRAPHY OF THE AUSTRAL BIOTA

Ninth Meeting of the Willi Hennig Society Canberra, 24–27 August 1990

The first announcement for this meeting is now available. It provides a tentative list of speakers in the sessions which include: (1) Molecular biology and systematics. (2) The use of phylogenetic information in ecological and evolutionary studies. (3) Austral flora and fauna: systematics and evolution. (4) Austral biogeography. (5) Coevolution of plant and animal groups. (6) Phylogenetic computing software. (7) Poster session.

For more information write to Dr. Ebbe S. Nielsen, CSIRO Division of Entomology, GPO Box 1700, Canberra, ACT 2601, Australia.

5TH INTERNATIONAL CONGRESS OF ECOLOGY

To be held in Yokohama Japan, on August 23-30, 1990. Contact: Prof Yiuti Cho, c/- Prof Akira Miyawaki, Institute of Environmental Science and Technology, Yokohama National University, Yokohama 240, Japan.

AUSTRALIAN INSTITUTE OF BIOLOGY Inc.

ANNUAL GENERAL MEETING AND ANNUAL SYMPOSIUM

This event will be held at Macquarie University over the period 6–8 July this year. The main symposium is entitled "Develop and Decline". With increasing population, industrial development and an expansion of resource utilisation will be required to maintain living standards. Decline in the natural environment seems an inevitable outcome. Biologists and ecologists are well aware of the problems and in last year's symposium they examined their role in political and economic decision making in environmental management.

But those planning for the needs of an increased population and directly involved with supplying our material wealth grapple with the same problems. They are concerned that economic development can proceed without environmental damage and be made compatible with maintaining both ecosystem functioning and species diversity. So, in this year's symposium, we have invited distinguished representatives of the planning branches of government and of "industry" in its widest sense to discuss with us their approach to the dual problem.

Speakers and Topics

Associate Professor Peter CURSON (Macquarie University. *Population and Environment - Facing the Next Century*

Dr Joan VIPOND (Head, Policy and Research Division, NSW Department of Planning. *Recentralize or Decentralize*

Associate Professor Snow BARLOW (Macquarie University and University of Western Sydney). *Agriculture and Environment*

Dr Bill HURDITCH (Executive Director, NSW Forest Products Association). *Forest Productivity and Environmental Quality*

Diana DAY (Project Co-ordinator (Water Policy), NSW Department of Water Resources). *Environmental Problems Created by Increased Water Use*

Geoff BUCKLEY (Manager, Australian Tourism Research Institute). *Tourism - An Enigma*

Associate Professor Mark WESTOBY (Macquarie University). *Making Biotechnology Effective Under Field Conditions*

Des MACKNEY (General Manager Corporate Affairs, Esso Australia Ltd). *Resource Depletion in a Resource Dependant Economy*

Dr John WARE (Griffith University). *Economic Limits to Environmental Problems*

Alan STEWART (NSW Land and Environment Court). *Risk Evaluation and the Role of Government*

Registration Forms are available from:
Lucy CROWLEY
School of Biological Sciences
MACQUARIE UNIVERSITY NSW 2109
Tel (02) 805 8166

ECOLOGICAL INTERACTIONS

The Biological Symposium of the Ecological Society of Australia will be held at Melbourne University during the period 25-28 September, 1990. The first two days will be devoted to papers on the symposium theme and the second two days will be available for general contributions. Registration fee is $65 ($20 for students). Obtain details and enrolment forms from: Dr Gerry Quinn, Department of Botany and Zoology, Monash University, Clayton, VIC 3168.

ENTOMOLOGICAL EDUCATION

A special interest group meeting on Entomological Education will be held at the A.E.S.Conference in Canberra in July, sponsored by the Entomological Society of NSW. The meeting will address the advancement of tertiary education in entomology, in particular postgraduate education.

The N.S.W. Entomological society will report on the activities of a working party set up following a forum entitled "The Crisis in Entomological Education and Employment" held at Macquarie University in November 1989. The working party, representing 6 NSW Universities, NSW Agriculture & Fisheries, CSIRO Entomology, and industry and employer groups, is particularly focussing on the current status of entomological education and joint co-operative activities.

An invitation is extended to all interested people to attend and contribute to this meeting. Further information can be obtained from:

Robert SPOONER-HART
Faculty of Horticulture
University of Western Sydney, Hawkesbury
RICHMOND.NSW.2753.
Phone: (045) 701429
Fax: (045) 701314

SHORT COURSES AT IMPERIAL COLLEGE

Two intensive residential courses relevant to entomology are being offered by Imperial College, London, during the first half of 1991. The first is entitled "Advanced Methods in Medical and Veterinary Vector Control" and runs for 6 weeks from January 28–March 8. The cost including accommodation and all meals is 3950 pounds sterling. The second is entitled "Decision Tools for Pest Management" and runs for 11 days from 15–26 April, 1991 at an all-inclusive cost of 1975 pounds. These are advanced courses presented by panels of experts and are aimed at persons with developing careers in the disciplines. Full details can be obtained from:

Mr Peter COMBEY
Director of Continuing Education
Room 321, Sherfield Building
Imperial College
LONDON SW7 2AZ UK

21ST AGM AND CONFERENCE OF THE AUSTRALIAN ENTOMOLOGICAL SOCIETY

The conference will take place in Canberra from 30 June to 5 July 1990 and the Organising Committee has spared no effort in making it a truly memorable meeting to celebrate the Society's silver jubilee.

We regret to advise that due to publication delays the new edition of "Insects of Australia" will not be ready to be launched at the AGM.

Time has run out for submission of papers but that shouldn't stop you from attending the meeting! Registration forms were included in the last issue of "Myrmecia" but call Joanne Daly (06) 246 4148 if you need another. A late registration fee of $15 will apply. More information is included inside the rear cover of this issue. See you in Canberra.

COMMUNICATING SCIENCE THROUGH THE MEDIA

Competing with the likes of Kylie Minogue and Pat Cash for media attention may seem inconceivable to some scientists, but according to some of Australia's leading science communicators — among them Robyn Williams of the ABC Science Show -scientists owe it to themselves and the public to improve their level of communication to the public. This means being willing and competent media collaborators. In October 1989 the Faculty of Humanities and Social Sciences at the University of Technology, Sydney, presented its first short course in Communicating

Science. This proved highly successful and in 1990 UTS will be mounting two more courses for practising scientists. The first introductory course will be held on May 23–June 30 and an advanced course will be held on 4 September–13 October. Guest lecturers will include well known science communicators such as Robyn Williams (ABC Science Show), Norman Swan (ABC Health Report), Geoff Burchfield (ABC Quantum), Helen Meredith (Technology Section, "The Australian") and Peter Roberts ("Financial Review"). Course brochures are obtainable from: Continuing Professional Education Directorate, University of Technology, P.O.Box 123, Broadway. NSW 2007 (Phone 02-2818563).

8TH INTERNATIONAL SYMPOSIUM ON BIOLOGICAL CONTROL OF WEEDS

To be held at Lincoln University, Christchurch, New Zealand, during the period 2–7 February, 1992. Information is obtainable from Ms P. Syrett, DSIR Plant protection, Private Bag, Christchurch, N.Z.

Obituary

Kenneth Milton MOORE
(19 February 1912–3rd February 1990)

Born at Leichhardt, Sydney, on 19 February 1912, Ken was proud to be a fifth generation Australian, descended from the "First Fleeters" John and Mary Small, who were married in Sydney on 12 October, 1788.

Ken grew up in Sydney and at the age of 8, he was already the proud possessor of a collection of shells, and insects preserved in methylated spirits, gathered from the shores and rocks of distant Cronulla and Austinmer, and from the Blue Mountains, where he enjoyed annual holidays.

His secondary education began at Canterbury High School and later Hurlstone Agricultural College. It was disrupted at age 15 when his family moved to the country to begin dairy farming. Two years later they returned to Sydney and Ken worked in three temporary jobs until he became a victim of the Great Depression and was unemployed for 4 years. During this time, encouraged by a family friend, who happened to be the Director of Education in NSW, he attended night classes at Hurstville and Kogarah, and passed the Intermediate Certificate examination.

Disenchanted with a city environment, Ken accepted positions on wheat, sheep and dairy farms on the Central Western Slopes. He married Doris Dickey in 1938 and subsequently attempted mixed farming, unsuccessfully due to lack of finance and droughts. With four young children to provide for, he worked for a while in a suburban engineering shop, later returning to orchards in the Gosford district.

At age forty, Ken was appointed in 1952 as Entomological Assistant with the Entomology Section, Division of Wood Technology, Forestry Commission of NSW. He continued to live in a remote bushland setting at Lisarow, near Gosford, which involved more than four hours of train travel each working day. Many of his earlier papers were the fruits of his observations in the nearby State Forests of Ourimbah, Wyong, Olney and Watagan.

With this background, Ken's achievements in the remaining years of his life are quite remarkable. His early and lasting interest in biology blossomed with access to

world literature on entomology and a research environment. Eventually, his investigations into the associations of insects with dying trees in local forests led to a specialised study of the psyllid genus *Glycaspis*, then known as *Spondyliaspis*.

Four grants provided by the Science and Industry Endowment Fund of CSIRO, and one from the Linnean Society of NSW, allowed him to travel Australia-wide to investigate this genus and its host associations, and collect psyllids of other genera. The first of his trips was in 1966, with later ones in 1972, 1974, 1975, followed by shorter trips in Queensland after he retired to live at Yeppoon. These collections are of great value, mainly because Ken collected specimens of the host trees, and had them identified by the authority on eucalypts in each State. He deposited some of his early material in the Australian Museum, but most of it, and all of the genera other than *Glycaspis*, in ANIC, CSIRO. This has been of inestimable value to me in revising other genera.

Ken was a foundation member of the Society of Entomologists (NSW) in 1953, a life member of the Royal Zoological Society of NSW, a foundation member of the Australian Entomological Society, and a member of the Linnean Society of NSW since 1958. Most of his 58 papers have been published in the journals of these societies.

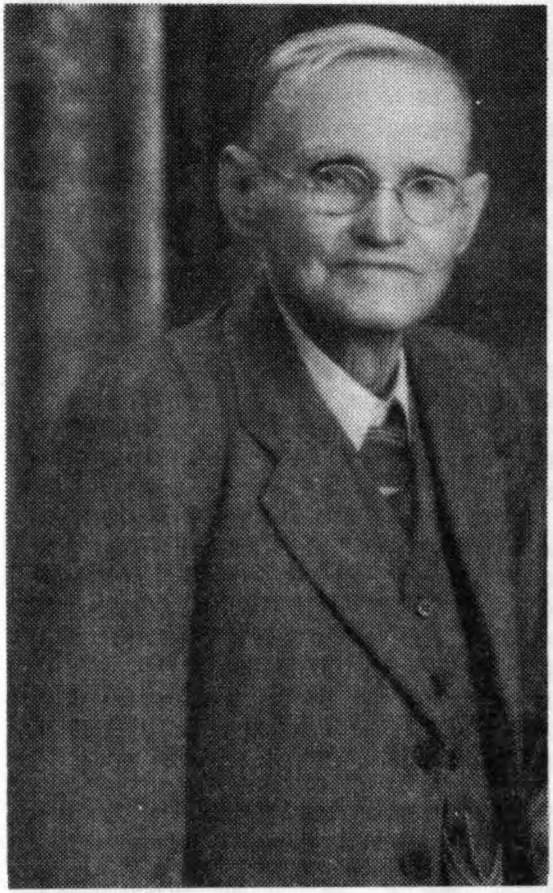
When he began work on *Glycaspis*, seven indigenous and one exotic species had been described. He has expanded it to three subgenera and a total of 149 species. His work has emphasised the importance of insect-host associations to the taxonomy of both insects and their hosts. In recent years he paid particular attention to endangered species of *Eucalyptus* in Queensland, and with the cooperation of Keith and Nancy Campbell, who collected psyllids from some species near Sydney, he has described several new species of *Glycaspis* from them. In his recent collecting around Yeppoon, despite increasing heart problems, he was supported by his wife, Dulcie Locke. He completed another manuscript just before he died.

Ken died peacefully in Yeppoon Hospital on 3 February 1990. He is survived by Dulcie, his sons Garth and Ross, his daughters Colleen and Kay, and several grandchildren. His passing will be mourned by many who have admired and benefited from his dedication to forest entomology and natural history in general.

Keith TAYLOR
Canberra

Biographical Note

Edmond Price JONES
(19 December 1877–18 July 1957)



Edmond Price Jones was born at Bondoola near Rockhampton, Queensland, and spent his entire life in this small settlement 10 kilometres from the coastal town of Yeppoon. The family activity was primarily citrus-growing together with irrigated small crops.

His family at this distant date (1990) do not know what prompted his hobby of collecting butterflies and moths. He certainly started before 1900. A book found amongst his papers was "British Butterflies" by N. Noel Humphreys. This book speaks of "the present season (1859)". it includes a chapter on "The best methods of preserving butterflies and

moths; and Rearing them from the caterpillar or the egg". E.P. Jones was in contact with Henry Tryon, then Queensland's Government Entomologist, as early as 1905 because a letter from Tryon in that year survives in which Tryon says "I am glad to recognise the increased proficiency that you have attained in entomological work as is indicated by the specimens to hand".

In 1908 after his marriage to Miriam Edith Davis he journeyed by coastal vessel to North Queensland, collecting at points of call Townsville, Innisfail and Cairns. Primarily however his field of collecting was within a radius of 100 km of his home on the Central Queensland coast. In his later years after 1935 he made trips to Brisbane, Stanthorpe and the Eungella Range near Mackay by car, always with his net "at the ready".

Edmond Jones banded trees in the mangrove swamps at Yeppoon to locate pupae of *Ogyris amaryllis*, and built up a large collection. Apart from following him through the mangrove swamps, his family remember an occasional foray to Mt Sevastopol near Westwood, always on the same date of the year, for specimens of a particular butterfly.

In the early years of the century he corresponded with and collected for some overseas collectors and his specimen cabinets included exotics from several continents. A very early Watkins and Doncaster catalogue exists among his papers. Waterhouse and Lyell in "The Butterflies of Australia" (1914) mentioned E.P. Jones in their acknowledgments. He also exchanged specimens with Brisbane-based contemporary collector Ludwig Franzen and E.P. Jones specimens (1923), still exist in the original Franzen collection which is now in the possession of his grandson Don Franzen. We can perhaps speculate that citrus formed a link between L. Franzen and E.P. Jones because Franzen was involved in fruit marketing. Certainly we can assume that Franzen, as a fellow collector, would have noticed the striking case label under which E.P. Jones distributed his "Butterfly Brand" citrus fruit (see illustration). This label was in use from about 1935 until the orchard ceased production in 1980, 23 years after E.P. Jones' death. He also corresponded with A.N. Burns during his time as curator of insects at the National Museum of Victoria.

Sadly, no member of Edmond Jones' family shared his interest in collecting, and the collection was broken up in 1987. It consisted of 44 drawers in 3 cabinets. Small portions went to the Queensland Museum and the University of Queensland collections with the cabinets and remaining specimens passing to Mr Ernest Adams, a fellow collector from Edungalba, west of Rockhampton.

Ron JONES (son of E.P. JONES)
Indooroopilly, Brisbane.

Australian Entomological Society Incorporated

APPOINTMENT OF PROXIES

[This completed form should reach the Secretary prior to the meeting(s) concerned]

I, ... of .....

being a menber of the above-named Society, hereby appoint .....

of .....

as my proxy to vote for me on behalf at the Council Meeting, Annual or Special General Meeting, as the case may be, of the Society, to be held on the 30th June to 4th July, 1990 and at any adjournment thereof.

Signed this ..... day of ..... 19 .....

(Signature) .....

(a photocopy of this form may be used)

REGIONAL COUNCILLORS

Queensland
Mr D.H.Foley
Entomology Department
University of Queensland
St Lucia Qld 4067
Ph (07)3773650

Dr P.H.Twine
DPI Entomology Branch
PO Box 102
Toowoomba Qld 4350
Ph (076)314292
Fax (076)347421

Mr R.I.Storey
DPI Entomology Branch
PO Box 1054
Mareeba Qld 4880
Ph (070)921555
Fax (070)923593

South Australia
Mrs A.Wells
Zoology Department
University of Adelaide
Adelaide SA 5000
Ph (08)2285691

Dr D.A.Mackay
School of Biol. Sciences
Flinders University
Bedford Park SA 5042
Ph (08)2752627/2572035

Australian Capital Territory
Dr P. Cranston
CSIRO Entomology
GPO Box 1700
Canberra ACT 2601
Ph (062)465290
Fax (062)470217

Dr E.J.Wright
CSIRO Entomology
GPO Box 1700
Canberra ACT 2601
Ph (062)465285
Fax (062)465539

Western Australia
Mr P.R.Davis
Agriculture Protection Board
Baron-Hay Court
South Perth WA 6151
Ph (09)3683232
Fax (09)3681205

Tasmania
Mr L.Hill
Agriculture Department
PO Box 303
Devonport Tas 7310
Ph (004)240238
Fax (004)242173

New South Wales
Dr D.G.James
Yanco Agricultural Inst.
NSW Agriculture
Yanco NSW 2703
Ph (069) 530244
Fax (069)530268

Ms M. Geary
Medical Entomology Unit
Westmead Hospital
Westmead NSW 2145
Ph (02)6337279/7548
Fax (02)6335314

Dr D.J.Bickel
Australian Museum
(Entomology)
PO Box A285
Sydney South NSW 2000
Ph (02)3398221
Fax (02)3604350

Victoria
Mrs J.A.Horne
Plant Research Inst.
Swan St
Burnley Vic.3121
Ph (03)8101511
Fax (03)8195653

Mr P.Vaughan
Survey Department
Museum of Victoria
71 Victoria Crescent
Abbotsford VIC 3067
Ph (03)4195200
Fax (03)4160475

Northern Territory
Mr E.S.C.Smith
Entomology Section
Dept. of Primary Industries & Fisheries
PO Box 79
Berrimah NT 0828
Ph (089)221256
Fax (089)470749

REPRESENTATIVE COUNCILLORS

Entomological Society of Queensland
Mr G.Daniels
Entomology Department
University of Queensand
St Lucia Qld 4067
Ph (07)3773656

Entomological Society of New South Wales
Mr J.A.Macdonald
Biol. and Chem. Research Inst.
PMB No 10
Rydalmere NSW 2116
Ph (02)6839777
Fax (02)6839714

Entomological Society of Victoria
Mr M.Hunting
49 Menzies Drive
Sunbury Vic 3429
Ph (03)7445178 (Home)
(03)7441900 (Work)

OVERSEAS CORRESPONDENT

New Zealand
Mr J.Tenquist
Wallaceville Animal Res. Centre
Private Bag
Upper Hutt. NZ

HONORARY MEMBERS

Dr I.F.B.Common
Dr J.W.Evans
Dr E.N.Marks
Dr K.R.Norris
Dr C.N.Smithers

MACKERRAS MEDALLISTS

1984 Dr J.A.L.Watson
1986 Dr R.W.Sutherst
1988 Dr T.R.New

SUSTAINING ASSOCIATES

Australian Entomological Supplies
Bayer Australia Ltd
Ciba-Geigy Ltd
Cyanamid Australia Pty Ltd
Dow Chemical (Aust) Ltd
ICI Australia Ltd
Shell Chemical (Aust) Pty Ltd

CONSERVATION COMMITTEE

Ms P.Greenslade (Convenor,ACT)
Ph (06) 464121
Dr T.New (Vic)
Ph (03) 4791111
Dr E.G.Matthews (SA)
Ph (08) 2238911
Dr B.Y.Main (WA)
Ph (09) 3803838
Dr A.N.Andersen (NT)
Ph (089) 470052
Prof. R. Jones (QLD)
Ph (077) 814530
Dr J.M.E.Anderson (NSW)
Ph (02) 3990344
Mr L. Hill (TAS)
Ph (004) 240238